Northern Voices, Northern Waters

NWT **Water** Stewardship Strategy

The waters of the Northwest Territories will remain clean, abundant and productive for all time.

Cover photos: K. Murphy, N. Snowshoe and P. Vecsei

Table of Contents

Message from the Ministers 1

1.0 Introduction 3

1.1 The Importance of Water to Aboriginal People in the NWT 4
1.2 The Importance of Water to the NWT 6
1.3 Why Do We Need the NWT Water Stewardship Strategy? 8

2.0 What the Strategy Will Achieve 10

2.1 Vision 10
2.2 Guiding Principles 10
2.3 Goals 11

3.0 Approaches to Meet Our Goals 11

3.1 Stewardship 11
3.2 Ecosystem-based Approach Within Watersheds 12
3.3 Water and Watershed Values 13
3.4 Information to Understanding 14

4.0 Components of the Strategy 15

4.1 Work Together 16
4.2 Know and Plan 19
4.3 Use Responsibly 26
4.4 Check Our Progress 29
4.5 Summary of Broad Keys to Success 31

5.0 Moving Forward 32

6.0 Appendices 33

Appendix A: Our Water Use 33
Appendix B: Water Stewardship Related Initiatives 37
Appendix C: Aboriginal Steering Committee 43
Appendix D: Right to Water Motion 44
Appendix E: Water-related Roles and Responsibilities 45
Appendix F: Framework for Keys to Success 62
Appendix G: Water Valuation and Sustainability Accounting 71
Appendix H: NWT Environmental Stewardship Framework 75
Appendix I: Mackenzie River Basin Transboundary Waters Master Agreement Background 76
Appendix J: Guidelines, Policies and Agreements 77

Message from the Ministers

On behalf of the Aboriginal Steering Committee, the Government of the Northwest Territories (GNWT) and Indian and Northern Affairs Canada (INAC), we are pleased to present ***Northern Voices, Northern Waters: The NWT Water Stewardship Strategy*** (the Strategy). This made-in-the-North Strategy will guide the effective long-term stewardship of our water resources. The Strategy's development process has been led by a committee of Aboriginal and government representatives that have worked hard to ensure the voices of NWT residents have been heard on issues related to ecosystem health, sustainable development and the socio-cultural importance of water.

In recent years, people of the NWT have clearly expressed water-related concerns. Knowledge, experiences and stories were shared at venues such as the Water Wise Conference (2007), Keepers of the Water Gatherings I, II and III (2006, 2007 and 2008), the Sahtu Water Gathering in Fort Good Hope (2008) and the National Summit on the Environment and Water hosted by the Dene Nation (2008). Many of the ideas from this dialogue formed the basis of a June 2008 discussion paper, entitled *Towards an NWT Water Resources Management Strategy for the Northwest Territories*. The concept of a collaborative approach that recognizes the values of NWT residents received a positive response. A series of workshops, meetings and presentations were held to discuss water issues and the development of the Strategy. Input from Aboriginal leadership, communities, governments, regulatory boards, environmental non-government organizations and industry was key in shaping the draft version of this document released in November 2009. This draft was then distributed for public comment during the winter of 2009-10. Feedback was incorporated and has resulted in this Strategy.

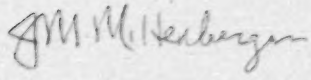
It is clear that as we move forward, many individuals, water users, planners and resource managers will have a role to play in ensuring NWT waters are sustained for human use and that northern ecosystems remain healthy and diverse. The vision and goals of the Strategy set out targets for NWT waters; the guiding principles, approaches and keys to success define our path forward and will help strengthen water stewardship practices.

The Strategy emphasizes the need for stronger relationships, improved communications and real opportunities to work together. If we collectively share our wisdom, we can observe changes to northern ecosystems and determine ways to reduce our impacts on water more effectively. These observations enhance our knowledge and understanding, helping us to make sound water stewardship decisions that protect the environment and sustain northern residents.

continued on next page...

Throughout the development process, it has been evident that NWT residents cherish our water resources and are willing to work together to make the best possible decisions. We thank everyone who has participated in this initiative. Our governments remain committed to ongoing dialogue and the effective implementation of the Strategy. In the coming months, work will be undertaken to define a detailed Action Plan. Your continued involvement can only improve on what we believe is a solid foundation on which to move forward.

Together we can ensure that NWT waters remain clean, abundant and productive for all time.



Michael Miltenberger
Minister of Environment and Natural Resources
Government of the Northwest Territories

Chuck Strahl
Minister of Indian Affairs and Northern Development
Government of Canada

1.0 Introduction

Freshwater is fundamental to life. Clean and abundant freshwaters ensure healthy, productive **ecosystems**. These are essential to the social, cultural and economic well-being of people, particularly the residents of the Northwest Territories (NWT). The rivers, lakes, streams and ponds of the NWT are an essential part of northern life and traditional Aboriginal cultures.

All populations require water to develop and prosper. All economies require water to produce goods and services. In the NWT and its shared watersheds, it is evident now more than ever that stresses are being placed on **aquatic ecosystems**. The effects from climate change and the impacts of growth and development can have consequences for **water resources**, ecosystems and residents of the NWT.

Today, as in the past, the deeply held values of Aboriginal people have brought water issues to the forefront in the NWT. Many residents have a deep and fundamental relationship with our waters. At the same time, territorial residents support responsible economic development within a sound environmental context.

Since pressures on waters throughout the NWT and in neighbouring jurisdictions continue to increase, residents have been clear that improved water stewardship is essential. As **water partners**, we can show strong leadership in water stewardship by setting high standards to hold ourselves and others responsible and accountable. We have the opportunity to ensure future generations have the resources and opportunities we treasure today.

Photo credit: M. Ehrlich

Freshwater is needed for life. It is vital to the social, cultural and economic well-being of people living in the NWT. Freshwater contains very little or no salt.

Ecosystems include all living and non-living things in a given area and all the ways they interact with each other.

Aquatic ecosystems refer to the interacting components and interdependencies of air, land, water and living organisms that depend on water resources. The two main types of aquatic ecosystems are marine and freshwater ecosystems. The NWT Water Stewardship Strategy only addresses freshwater ecosystems.

Water resources include lakes, rivers, deltas, wetlands and the surface and groundwater that supplies them - whether in a liquid or frozen state. In addition to ecological benefits, these resources can provide economic and socio-cultural benefits.

Water partners include anyone that has a role in water stewardship. They may also be referred to as water stewards.

Northern Voices, Northern Waters: The NWT Water Stewardship Strategy (the Strategy) sets a common path forward to steward our waters. All water partners, including all water users, are encouraged to embrace the Strategy as a starting point for future actions.

"Water and the land is like blood in the body. If you pollute or cut off water, the land will die. Water is fundamental to all life and we must work together to protect it".

Chief Charlie Football
Gameti, NWT

1.1 The Importance of Water to Aboriginal People in the NWT

Aboriginal people have a long and intimate relationship with the natural environment. They draw their spiritual and cultural integrity and strength from the land and water (i.e., ecosystem). Their traditional knowledge comes from a deep understanding of the natural world around them. Aboriginal people make up approximately half of the total population of the NWT. Today, all residents and visitors benefit from this legacy and rely on the waters of the NWT for their needs.

Aboriginal people expect their traditional ways of life and cultures to be sustained. Many places and features associated with water have important cultural, spiritual or historical meaning. They are highly valued by Aboriginal people and need to be respected and maintained.

Aboriginal people expect to be directly involved in the Strategy, especially the implementation phase. The appropriate use and consideration of all types of knowledge, including traditional, local and western scientific, are an integral part of the Strategy and related initiatives.

Aboriginal Rights

The NWT Water Stewardship Strategy does not alter existing water management responsibilities. It does not affect or infringe upon existing or asserted Aboriginal rights, treaty rights or land, resource and self-government agreements. In the case of any inconsistency between the Strategy and existing or future treaties or land, resource and self-government agreements, the provisions of the treaties and agreements shall prevail.

Figure 1. Watersheds of the NWT

Karst topography is a landscape created when groundwater dissolves sedimentary rock, such as limestone.

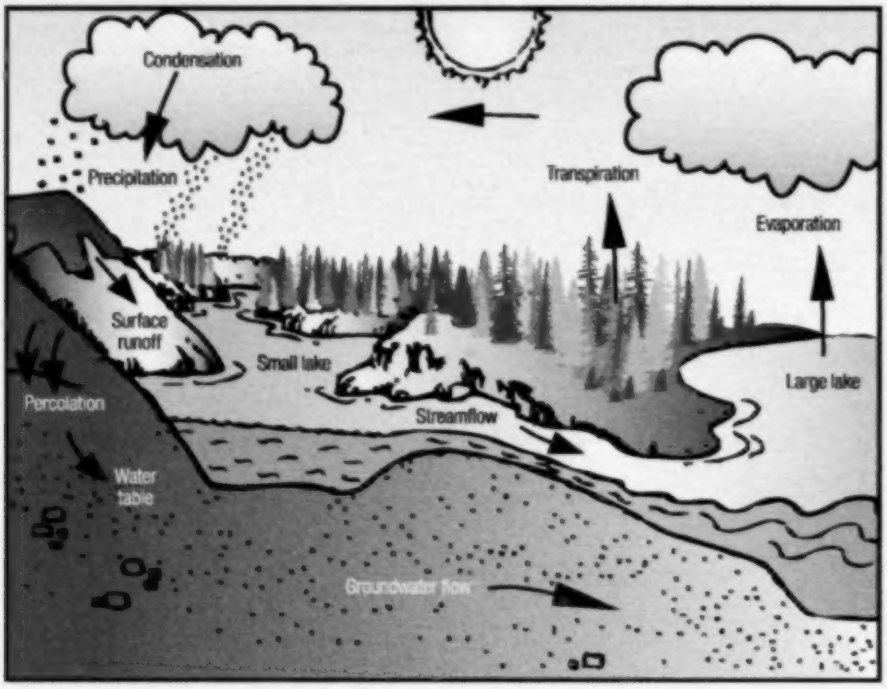
Permafrost is permanently frozen subsoil which is found in many areas in the NWT.

1.2 The Importance of Water to the NWT

The natural environment is one of the NWT's most valued features. Its water resources are particularly significant. The Mackenzie River Basin is Canada's largest river basin (see Figure 1 – Watersheds of the Northwest Territories Map).

Water is a defining feature for much of the NWT's environment, including karst topography, widespread permafrost, deltas and internationally recognized wetlands. Lakes, rivers, groundwater and wetlands help to ensure the survival of fish species, other animals such as waterfowl, furbearers, moose and caribou, and plants. The continued sustainability of our natural environment is directly dependent on its waters and the movement of these waters through the water cycle (see Figure 2 – Water Cycle).

Figure 2: Water Cycle



This diagram depicts how water moves through the aquatic ecosystem from precipitation to surface and groundwater, to rivers and lakes, and back into the atmosphere through evaporation and transpiration.

The waters of the NWT, both within and outside the Mackenzie River Basin, have many uses (see Appendix A – Our Water Use). They are important for the efficient transport of goods, services and people, both in the winter (ice roads) and summer (barge and other boat traffic). Residents also rely on these waters for personal travel to hunting areas, cultural sites and other communities. Travelling along rivers and lakes by canoe honours and celebrates ties to Aboriginal heritage.

NWT communities rely on surface water, and in some cases groundwater, as sources for their public water supply. If sources are kept clean and abundant, water is more easily made suitable for drinking and other uses. After we use water in communities, it is then returned to the environment. Safe public water supplies need to be sustained by communities without compromising downstream ecosystems.

The waters of the NWT also contribute to the economic well-being of residents. For example, the NWT has important commercial and domestic fisheries. Fishing lodges and outfitter camps play a valuable role in the economy and rely on water for their activities. The fur harvesting industry depends on the health and abundance of water resources.

Mining is a significant aspect of the NWT economy. All mines require substantial amounts of water for processing and other purposes. All mines discharge water into the environment. This water must be treated before it is discharged to meet regulatory requirements.

Photo credit: N. Snowshoe

Water Resources Facts

The Mackenzie River is Canada's longest river at 4,241 km.

The Mackenzie River Basin is the largest drainage area at 1.8 million km^2. This basin is 1/5th the size of Canada.

Great Bear Lake is the largest lake located entirely within Canada, with a surface area of 31,328 km^2.

Great Slave Lake is the deepest lake in Canada at 614 m, and the fourth largest.

Great Bear Lake and Great Slave Lake are two of the cleanest lakes of their size in the world.

The Mackenzie Delta is Canada's largest freshwater delta, and the 12th largest in the world covering a surface area of 13,500 km^2.

Oil and gas developments are also key to the NWT economy. Water is needed for general operations, including downhole injection and watercourse crossings. Upstream developments in neighbouring jurisdictions, including oil sands operations in northern Alberta, have implications for our waters and are of particular concern to our residents.

Rivers are a source of energy that can be used to create electrical power. They generate almost half of the overall power needed for the territory. There is increased interest in further developing the hydroelectric potential of the NWT to offset or eliminate diesel-fired power generators and provide naturally produced power to industrial developments.

The waters of the NWT are not only important to the territory but are regarded as a significant resource worldwide. The Mackenzie River Basin's natural water-ice-climate system helps stabilize the Earth's climate. There could be ecological and water-related implications for the entire continent if the Mackenzie River Basin system changes too much. Climate change experts are forecasting that the Mackenzie Valley will likely experience the greatest increases in temperature in the world during the coming decades. Climate change affects the NWT's water through extreme weather events, increased variability in precipitation, the melting of glaciers and polar ice sheets, the global rise of sea level and ocean warming. Consequently, the populations and ranges of various species are also affected which influences ecosystem integrity. The *NWT Climate Change Impacts and Adaptation Report* describes these impacts and options available to adapt and plan for the future (see Appendix B – Water Stewardship Related Initiatives).

In 2007, the 15th Legislative Assembly of the NWT declared, "all peoples have a fundamental human right to water that must be recognized nationally and internationally, including the development of appropriate institutional mechanisms to ensure that these rights are implemented." (See Appendix D – Right to Water Motion)

Water stewardship recognizes that people are part of the environment and that all water users have a duty to ensure their actions safeguard the environment. Some Aboriginal groups consider water to be a steward of people. Both perspectives recognize the importance of the environment.

1.3 Why Do We Need the NWT Water Stewardship Strategy?

In 2008, the Government of the Northwest Territories (GNWT) and Indian and Northern Affairs Canada (INAC) started working with representatives from Aboriginal governments (see Appendix C – Aboriginal Steering Committee) to develop a water stewardship strategy that focuses on freshwater in the NWT. Other strategic plans exist that address NWT marine and coastal waters.

The partners involved in this collaborative approach to **water stewardship** include the Government of Canada, the GNWT, Aboriginal governments, regulatory boards and agencies, environmental organizations, industry, academic institutions and the general public. All have a vested interest in preserving and protecting the waters of the NWT.

The Government of Canada is responsible for the management of water resources on NWT Crown land, including but not limited to the following: water data collection; water research; protecting of migratory birds; safeguarding fisheries resources, habitat and freshwater environments; and, maintaining navigable waterways. The GNWT is responsible for public water supply regulation within the territory. Regulatory boards issue water licences that permit the use of water and/or disposal of waste into water. Settled land claim and self-government agreements, as well as current legislation, policies and

Photo credit: J. Charlwood

programs, provide many of the tools needed to establish the effective and sound stewardship of our water resources (see Appendix E – Water-related Roles and Responsibilities).

The Strategy is a living document intended to reflect the deep fundamental relationship between NWT residents and the waters of the NWT. It encourages **water partners** and **water managers** to work together in a collaborative manner. It promotes initiatives that encourage responsible economic development within a sound environmental context. It also supports the sharing of information and knowledge (traditional, local and western scientific). In these ways, we can make the best water-related decisions.

The Strategy addresses gaps and weaknesses in collective water stewardship efforts at all levels. It is intended to help make the best use of our current **capacity** and to build capacity where it is lacking.

This document sets out a vision for NWT water resources that can be achieved by implementing the broad **Keys to Success**. Progress towards realizing the Strategy's goals will be measured on an ongoing basis. The Strategy's Framework for Keys to Success outlines how water partners can work together to improve water stewardship in the NWT. It is recognized that changes occur over time and that the Strategy will need to be updated as necessary. More details on the Keys to Success can be found in Section 4.0 and Appendix F – Framework for Keys to Success.

Residents of the NWT have expressed a desire to lead in the area of water stewardship. This means setting high standards to hold residents and others responsible and accountable. The purpose of developing this Strategy is to proactively care for our water on a territory-wide basis, to take the steps necessary today to ensure our water is used respectfully and remains clean, abundant and productive for all time.

Water partners include anyone that has a role in water stewardship. They may also be referred to as water stewards.

Water managers include any government, agency or regulatory board that has a role in decision-making processes, in addition to being a water partner.

Capacity is the ability to complete or be involved in the completion of an activity. Capacity can refer to human and financial resources.

Keys to Success are activities or action items that are fundamental to the overall success of the Strategy. These actions must take into account the key elements of the watershed, including ecosystem components and their inter-relationships, natural changes and changes resulting from human activity and human uses within, and adjacent to, the watershed.

2.0 What the Strategy Will Achieve

2.1 Vision

Productive means that waters are able to sustain ecosystem life and human activities.

*"The waters of the Northwest Territories will remain clean, abundant and **productive** for all time".* NWT Water Stewardship Strategy Vision

NWT waters are important for ecosystems and the people within those ecosystems. The vision of the Strategy reflects the desire of NWT residents to safeguard our water resources for current and future generations. Collectively and individually, we must commit to achieving this vision.

Abundant and clean water ensures safe drinking water in adequate quantities for NWT residents and sustains healthy aquatic ecosystems. People depend on aquatic ecosystems for their food and drink, travel, economic growth, culture and spirituality. We need certainty that these ecosystems are healthy. Abundant and clean water also ensures we can continue to use water respectfully and productively in our chosen ways of life and economy. How we live depends on water, as does our community life, power, transport and industry.

2.2 Guiding Principles

The following principles guide how we use our water in the long term.

Sustainability is the capacity to endure. In ecology, sustainability describes how biological systems remain diverse and productive over time. For humans, the well-being of current and future generations depends on the health of the natural world and the responsible use of natural resources.

Respect

- Water stewardship decisions respect values held and various lifestyles chosen by NWT residents. These include spiritual, cultural, public health, recreational, economic and ecological values.
- Water stewardship decisions respect Aboriginal rights or treaties including land, resource and self-government agreements.

Sustainability

- Water stewardship decisions sustain healthy and diverse aquatic ecosystems over time. They maintain the ability of current and future generations to choose their way of life.

Responsibility

- Water stewardship is a collective responsibility. Each of us must make thoughtful decisions about our actions that may affect NWT aquatic ecosystems.

Knowledge

- Water stewardship decisions are based on accurate and up-to-date traditional, local and western scientific knowledge.
- As knowledge evolves, stewardship decisions evolve accordingly.
- Where there are threats of serious or irreversible damage to aquatic ecosystems, lack of certainty is not used as a reason to postpone effective measures that can avert the potential threat.

Accountability

- Water stewardship decisions are made in an informed, transparent and participatory manner. Those who make decisions must be held responsible for the consequences of those decisions.

2.3 Goals

The goals of the Strategy are to assure:

- Waters that flow into, within or through the NWT are substantially unaltered in quality, quantity and rates of flow.
- Residents have access to safe, clean and plentiful drinking water at all times.
- Aquatic ecosystems are healthy and diverse.
- Residents can rely on their water to sustain their communities and economies.
- Residents are involved in and knowledgeable about water stewardship.
- All those making water stewardship decisions work together to communicate and share information.

3.0 Approaches to Meet Our Goals

The Strategy uses four inter-related approaches to ensure progress towards its goals. These are stewardship, an ecosystem-based approach within watersheds, understanding and accounting for the value of water and watersheds, and translating information into informed decision making.

3.1 Stewardship

Stewardship recognizes that people are part of the environment, and that as water users or water managers we have a duty to ensure our actions safeguard the environment. Some Aboriginal groups consider water to be a steward of people. Through vigilance and effective stewardship all of us can help to ensure clean, abundant and productive waters in the NWT and for our downstream neighbours.

Stewardship requires the cooperation and coordinated effort of individuals, governments, boards, organizations, communities, industry and others to be successful. The long-term sustainability and health of our water is a shared responsibility.

Ecosystem-based approach is a method of decision making that considers the structure, function, processes and values of an ecosystem, as well as how humans and other species interact.

Watersheds are areas of land which drain water through a network of pathways both on and under the surface (via groundwater). As the waters flow downstream, these pathways converge into progressively larger streams, rivers, lakes and oceans. Watersheds exist on different scales and are of varying sizes. Watersheds can be sub-units of each other. For example, the Peace River is a sub-watershed of the much larger Mackenzie River Basin. All lands are watersheds, therefore activity on land influences our waters.

3.2 Ecosystem-based Approach Within Watersheds

The Strategy is guided by a holistic approach known as an ecosystem-based approach within watersheds. This approach is founded on the understanding that it is important to sustain a diverse and healthy ecosystem for the benefit of people, plants and animals within a watershed.

To apply this approach we need to practice water stewardship at various scales – from local to river basin-wide collaborations. An ecosystem-based approach within watersheds requires that those who make decisions which may affect water understand and consider structure, function, and processes within the ecosystems, as well as all values within the watersheds. We need to understand how human actions affect ecosystems and how ecosystems affect humans.

An ecosystem-based approach places social and economic considerations in the context of ecosystem health and diversity, emphasizing the following key elements:

- **People are a part of ecosystems.**
- **Ecological, social and economic goals are inter-related in water and land use decisions.**
- **Watersheds are the basic unit of consideration. Other ecological and migratory paths and political boundaries are layered over the watershed boundary.**
- **Natural processes and social systems are considered in all their complexity to ensure decisions can be adapted based on new information and do not lead to irreversible consequences.**
- **Interested parties have the opportunity to be involved and collaborate to define problems and find acceptable solutions that anticipate ecosystem change.**
- **Understandings of ecosystem structure, function and processes along with responses to environmental disturbances are incorporated in decisions.**
- **The health and diversity of ecosystems and human uses are sustained.**

Photo credit: M. Bradley

3.3 Water and Watershed Values

Water holds significant value for the natural environment and people. Water and watershed features, which include wetlands and forest cover, provide services such as keeping water clean and storing water. These services are valuable to nature and humans. Such services are often overlooked in water and land-use decisions.

Water and land-use decisions are challenging in that many diverse and sometimes conflicting interests must be taken into account. Whenever a decision relating to water and land use is made, trade-offs and compromises occur. Improving the understanding of natural values, prioritizing values and uses, and assigning respective weightings to water and **watershed values** can help us make more informed decisions regarding water and land use.

Water valuation is a tool that can be used to identify and understand the spiritual, cultural, social and economic values within a watershed. **Sustainability accounting** is a tool that can be used to track how the values of interest change over time.

Values related to human uses include fisheries, energy production, transportation and fur harvesting, to name a few. Natural values include wildlife habitat, areas that naturally replenish groundwater, wetland water filtering services and the stability that forests provide to river banks.

Spiritual and cultural values may be invaluable or irreplaceable. If we use a monetary value to make decisions on water and land use, we need to ensure that values are compared adequately. For example, the value of fishing may be different on a local level than regionally or nationally. Locally, the fish resource may be very valuable to those people who would need to replace a food source if it were lost. Regionally, the money saved through the use of hydroelectric power as compared to money spent on diesel fuel may be considered when making decisions, even if use of hydroelectric power could have an impact on local fisheries. Cultural or spiritual values in a specific area may vastly outweigh any possible commercial value and may indeed be irreplaceable; these two types of values cannot be compared directly.

Water valuation aims to measure water resources using monetary units or dollar value. Many jurisdictions throughout the world are exploring this method to see if it can help in water and land-use decisions. Work with this tool is in its early stages and not yet ready to be fully implemented in the NWT. Water valuation cannot be implemented until community and regional dialogue takes place to identify and define water and watershed values. As well, we need to develop and improve methods of assigning values that would allow some comparison and determine how these methods could be applied to improve decisions.

Collectively, we must come to some consensus on the various values we attribute to water, watershed features and water uses. Dialogue at the community level is necessary to assign priorities to the various water uses and associated values. Achieving consensus would lead to broad support for decisions that are better informed, transparent and accountable (see Appendix G – Water Valuation and Sustainability Accounting for a detailed discussion).

Watershed values include spiritual water features, significant aquatic furbearers, waterfowl or fish habitat, navigational channels, river crossings, ice road routes, particularly biodiverse areas, community public water supply sources, significant wetlands that may purify or slowly collect and release waters to a specific area, and recreationally significant areas.

Water valuation means understanding and accounting for the value of water and watersheds.

Sustainability accounting is tracking the value of water and watersheds for consideration in decision making.

Adaptive management is the process of continually incorporating newly gained knowledge or information into decision making.

3.4 Information to Understanding

As water partners in the NWT, we have been collecting water-related information for quite some time through multiple studies and monitoring programs. Monitoring activities need to continue. We must make sure existing and new information (traditional, local or western scientific) leads to increased understanding and continuously informs water stewardship decisions. By doing so, we will better understand our aquatic ecosystems and how we impact them through our actions. Early detection of change points us to gaps in knowledge and areas that require further study. These studies can determine why observed changes occur and what we can do about them. There is also value in using decision support tools to ensure human actions are being assessed in consistent ways and that predictive models help to forecast what changes might occur. Both of these approaches increase our understanding and help us to make appropriate decisions; however both rely on the input of substantial and accurate information. Using information to increase our understanding with the objective of making informed decisions is part of **adaptive management** (see Figure 3 – Information to Understanding).

Figure 3: Information to Understanding to Decision Making

If we use adaptive management, we can improve how we manage risk to the environment and human health. Ongoing monitoring can confirm whether actions taken to prevent or reduce negative impacts on the environment are working. For example, a robust monitoring program at an industrial or municipal development could detect change in water quality and point to changes needed in water treatment processes or other measures before environmental harm is irreversible or too significant.

4.0 Components of the Strategy

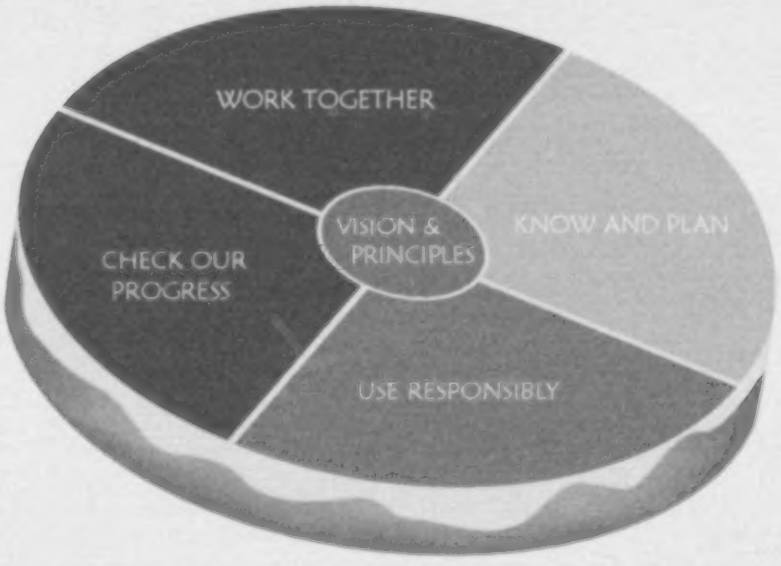
As discussed in Section 2.0, the Strategy's vision, guiding principles and goals outline a desired outcome for the NWT that can be achieved through active water stewardship.

The success of the Strategy is based on four main areas that require concentrated efforts: Work Together, Know and Plan, Use Responsibly and Check Our Progress. The drum diagram below represents these four areas of work (see Figure 4 – Components of the Strategy). The Strategy's vision and goals, which are in the centre of the drum, along with the guiding principles, focus our work.

In the NWT, we already have a significant amount of work underway and number of accomplishments that fall into each of the four components of the Strategy. However, to be effective we will always have some work to do. The discussion that follows identifies what activities are occurring, and what actions need to occur to improve efforts in each component. The actions stemming from this discussion form the broad Keys to Success for each of the four components. Categorized under ongoing, short, medium and long-term timeframes, additional actions are detailed under each of the broad Keys to Success in the **Framework for Keys to Success** (see Appendix F). Keys to Success may be primarily accomplished through one water partner, or they may be a shared effort.

Each year water partners need to collectively set priorities and find ways to realize these actions. In some cases, initiatives undertaken through broad environmental stewardship actions, such as the NWT Environmental Stewardship Framework, may also advance the Strategy's vision and goals (see Appendix H – NWT Environmental Stewardship Framework).

Figure 4: Components of the Strategy



Work Together

Build a cooperative environment that supports water managers and water partners in sharing information, building capacity and working together.

Know and Plan

Build and implement multi-disciplinary aquatic monitoring and research programs that consider traditional, local and western scientific knowledge. Use this information to assist in the planning of water-related stewardship activities.

Use Responsibly

Ensure decision makers have tools available that work well together and are easy to use in a consistent manner.

Check Our Progress

Ensure we make progress towards the Strategy's vision of clean, abundant and productive waters.

4.1 Work Together

What We Are Doing

Communication and cooperation among water partners, as well as public involvement on water issues, promotes water stewardship and helps us achieve our goals. If we use the best available knowledge (traditional, local and western scientific) our water stewardship decisions can be more effective. Water partners have already taken the first steps towards working together and sharing information by participating in the development of the Strategy by attending a number of meetings and workshops.

Many strong partnerships between agencies already exist in the NWT. For example, Environment Canada operates the Hydrometric Monitoring Network in conjunction with Indian and Northern Affairs Canada as a way to combine resources for a more effective NWT monitoring program.

What We Need to Do - Keys to Success

The success of the Strategy requires water partners to build a cooperative environment for all involved. This means improved communications, information sharing and capacity building. We must consider current realities that hinder working together and address these issues if we are to achieve our vision and goals.

Working together also requires cooperation between and among neighboring jurisdictions including Alberta, the Yukon, Saskatchewan, British Columbia and Nunavut. Within the Mackenzie River Basin, the Strategy is intended to inform sub-agreements as outlined in the Transboundary Waters Master Agreement (see Appendix I – Mackenzie River Basin Transboundary Waters Master Agreement Background).

By strengthening communications, existing agreements and collaborative opportunities, we can reinforce each other's efforts, make better use of existing capacity and address gaps.

4.1.1 Develop a cooperative working environment for water partners

Through regular communication, water partners will have a better mutual understanding of each other's values, roles and responsibilities. Such an understanding allows partners to work well together, develop relationships and over time build trust. As we implement the Strategy, stronger and more effective relationships among all NWT water partners will evolve.

Water-related management responsibilities are held by various levels of government (Aboriginal, community, territorial and federal), regulatory boards and agencies, and resource management boards. Much of the NWT water management framework is laid out in land, resource and self-government agreements. Additional roles and responsibilities are set out in other legislation. See Appendix E for detailed information on water-related roles, responsibilities and relevant legislation.

4.1.2 Implement collaborative planning to address capacity issues

Since the NWT covers a vast area while the population is so small, one of the biggest challenges in the NWT is capacity. This includes limited human resources and adequate training at almost all levels. However, when agencies and individuals work together towards a common goal, overall capacity is enhanced. This leads to more effective water

stewardship. To increase our capacity effectively, we must routinely scan information and educational challenges, evaluate and update in-kind service or funding programs, and improve training programs or develop new educational opportunities.

Collaborative strategic planning can make the best use of existing and limited resources, and justify individual or collective requests for additional resources or training. Better use of resources through cooperation, coordination and partnerships will lessen the impact of limited capacity. Coordinated funding arrangements for aquatic ecosystems monitoring and research programs will increase efficiencies. All of these activities can help to ensure that partners are aware of each other's roles, responsibilities and needs. Learning from each other is not only beneficial, it is necessary.

For example, in order for community-based monitoring to be effective, coordinated training and education programs are needed. These ensure communities learn how to design and implement monitoring programs and interpret results in a consistent way. Water managers can learn more about community concerns and values through the results of community-based monitoring.

4.1.3 Use best available knowledge to help inform all water partners

A considerable amount of information and effort is required to make informed decisions. These decisions must consider the values of residents and the best available knowledge (traditional, local and western scientific) on the entire watershed. The information must be widely shared through meetings, workshops, databases and websites, and applied collectively.

Monitoring programs and research results, together with traditional and local knowledge, provide important information about the state of water resources. They also help identify what actions are needed to keep ecosystems healthy and productive, and to ensure water uses remain sustainable. Ultimately, the comprehensive collection of all readily available and accessible information about watersheds in the NWT is required and must be made available to all water partners. Developing and updating compatible and/or common information databases will support this endeavor.

Photo credit: A. Mills

"The water is a very important thing, and we respect that, that's the reason why they have stories behind it. I want to try to protect all the watersheds that we talk about."

Dennis Deneron
Fort Simpson, NWT

Best Available Knowledge

Traditional and Local Knowledge

Traditional knowledge (TK) provides valuable information and important guidance for all stewardship actions. TK is not just another source of knowledge or information – it considers how to effectively involve residents in decision-making processes. TK is based on respect and understanding the values of others. It has cultural elements that stand alone because they cannot be clearly translated into western counterparts.

The appropriate incorporation of TK requires continuity and sound, respectful and collaborative working relationships with TK holders. Existing TK protocols developed by communities, regions and Aboriginal governments must be used wherever available. These protocols, together with the *GNWT Traditional Knowledge Framework* and the *GNWT Environment and Natural Resources Traditional Knowledge Implementation Plan*, guide how research should be carried out appropriately with communities and TK holders. They also guide how TK research results can be respectfully incorporated in collaborative decision making. Local knowledge is also a valuable source of information and can provide important guidance for decision-makers and other parties.

Western Science Knowledge

Government agencies, industry, academia and individuals gather a great deal of scientific information about water resources in the NWT. This includes data and information related to water quantity, quality, flow, aquatic ecosystems and water values. The available information is dispersed among various organizations and is not readily or widely available. Knowledge gaps need to be filled. Current and new information must be made more accessible to all water partners. A technically sound framework must be established to enable better understanding and application of this information.

4.1.4 Continue ongoing communication, awareness and engagement among water partners and with the general public

Regular, consistent and transparent communication among water partners is essential to gain a full understanding of issues, values and results. Opportunities for all partners to learn more about water must be encouraged.

Continuous communication, education and awareness about water issues is required to keep NWT residents fully engaged in water stewardship. Regular public forums, workshops and meetings are ideal settings where information sharing and collaboration can occur. Communication tools such as brochures, newsletters, fact sheets and other plain language documents can be distributed to interested residents to further engage them in this process. A website to host general material on the Strategy will ensure easily accessible water information for water partners and the public. Now media tools may also be effective.

4.2 Know and Plan

What We Are Doing

People of the NWT have lived and worked on the land and with its water resources for thousands of years. This presence has allowed us to observe and study how aquatic ecosystems work and what needs to be done if these ecosystems are to stay healthy and productive. As the territorial population increases, we must continually **monitor** aquatic ecosystems and plan our activities to make sure they stay healthy.

We recognize aquatic ecosystems within NWT watersheds may resemble those that are located elsewhere in the world. However, extreme cold and species found only within the NWT may result in aquatic ecosystems that are unique to our region. We also acknowledge that our social and economic reliance on aquatic ecosystems may differ from elsewhere.

There are certain aquatic ecosystems such as deltas, shorelines or spawning beds that can be used as indicator areas to assess the viability and biodiversity of the ecosystems. Traditional, local and western scientific knowledge all contribute to understanding these aquatic ecosystems and their stressors, such as climate change and human development.

A number of monitoring and research programs address very specific issues. They tell us the current state of the natural environment and how it is changing. They contribute to our understanding about ecosystems and how well we are doing to manage our activities within these ecosystems. Collectively, these results provide valuable information for all water stewardship activities, from land-use planning to community water supply protection. Many of these programs benefit from the collaborative involvement of Aboriginal governments, organizations and communities. The Strategy encourages further leadership and involvement of Aboriginal people in monitoring and research programs.

The following planning initiatives contribute to achieving the Strategy's vision and goals.

- Land, resource and self-government agreements – determine who manages the various aspects of the environment and how we work together.

Monitor is to make detailed observations on current conditions.

Viability is the capability of surviving or living successfully.

Biodiversity is the variety of life in the world or in a particular ecosystem.

Examples of NWT monitoring and research programs include the NWT Cumulative Impact Monitoring Program, programs for monitoring individual industry or community water licences, drinking water quality monitoring, and the NWT Protected Area Strategy's freshwater classification research. See Appendix B for list and description of water stewardship initiatives in the NWT.

- Land-use planning – determines overall planning objectives with respect to watershed values, including where certain development can occur.
- Protected areas – determine a clear set of management rules to conserve certain important values.

Protected Areas Strategy and Water Stewardship

The NWT Protected Areas Strategy (PAS) is a partnership among communities, governments, environmental non-government organizations and industry. These partners work together to establish designated protected areas across the NWT. Protecting special cultural and natural areas and core representative areas within each ecoregion of the NWT are the PAS's two complimentary goals.

Freshwater is an important value to communities when proposing areas for protection. Freshwater values include protecting entire watersheds, maintaining traditional fishing activities, and protecting wetlands and waterfowl. The PAS process includes assessing ecological, social, cultural and economic values to make balanced decisions about the designation, boundaries and management of the area of interest being put forward for protection.

The PAS has developed a draft freshwater classification system for the NWT, which can help inform not only protected areas planning but also land and water-use planning and development decisions. The classification system describes the dominant regional patterns of environmental conditions that influence our aquatic ecosystems. The work led by the PAS is important with regards to meeting the Strategy's vision and goals.

Watershed planning considers industrial or community development activities that occur within watersheds and what stressors may come from outside the watersheds through the air, precipitation or rivers. This information can be used to inform land-use planning, protected areas planning, other strategic plans and implementation actions related to the use of particular water resources or disposal of wastes to water.

For instance, community drinking water protection and management is guided by *Managing Drinking Water in the NWT: A Preventative Framework and Strategy*. Discharges from community wastewater systems are guided by the *Canada-wide Strategy for the Management of Municipal Wastewater Effluent* which sets out a path forward for federal, territorial and municipal governments to work together to develop appropriate requirements. The *NWT Hydro Strategy* (Draft) recognizes the need for renewable energy sources and relies on the health and abundance of territorial water resources. See Appendix B for more information on these and other water stewardship initiatives.

Community Water Supply and Wastewater

Communities want to ensure their public water supply sources are protected and that wastewater does not harm the surrounding environment. NWT communities draw their public water supply mostly from surface water, and in a few cases from groundwater. Information on community drinking water is found on the GNWT Municipal and Community Affairs website: www.maca.gov.nt.ca/operations/water/homepage.asp. If communities understand the extent of the watershed from which they withdraw their water source, it is easier to take action to ensure the water source remains clean and abundant. Community watershed maps are available through the GNWT Environment and Natural Resources website: maps.gnwtgeomatics.nt.ca/portal/watershedmaps.jsp.

Water licenses issued by regulatory boards define how much source or "raw water" a community can take from the source and how to dispose of waste to ensure water bodies are not harmed. A Surveillance Network Program is put in place, as required by the water license, to make sure that water used or discharged by the community can be sampled to determine water quality. Under the *Public Health Act* and the associated Water Supply System Regulations, communities are also required to take water quality samples within their operating systems. Environmental Health Officers monitor these samples to ensure that they will not pose health threats. In the event that the water quality data suggests a threat to public health or if there is a concern that contamination may occur, the Environmental Health Officer can issue a Drinking Water Advisory.

When community members know about their water, including public water supply systems, municipal wastewater effluent and other water-related issues, risks can be properly identified and managed. Actions taken under the *NWT Water Stewardship Strategy* and the *Canada-wide Strategy for the Management of Municipal Wastewater Effluent* will help to manage these risks.

NWT Hydro Strategy (Draft)

Many NWT communities and resource developments utilize diesel-generated power, which is not sustainable from both an economic and environmental perspective. The purpose of the *NWT Hydro Strategy* is to promote the development of the NWT's 10,000 megawatts of hydro potential and is captured in the following vision:

"The development of NWT hydroelectric resources will displace imported fossil fuels, drive economic development through the provision of stable, affordable electricity, and provide a lasting legacy of clean, renewable power for future generations."

The work related to the *NWT Hydro Strategy* will be linked to the *NWT Water Stewardship Strategy*. Hydro development is integrally linked to the health and abundance of territorial water resources. Much of the environmental baseline data and traditional knowledge work on NWT hydrological basins will be undertaken through the *NWT Hydro Strategy*. This includes a number of initiatives being lead by the Northwest Territories Hydro Corporation (a GNWT Crown corporation) such as:

- Work with the Water Survey of Canada to identify new locations for water gauging sites for collection of hydrological baseline data;
- Work with communities to gather baseline data, including seasonal flow patterns and migratory fish data; and
- Work with communities and regional Aboriginal organizations to reflect hydrological data in land use planning initiatives.

Rising oil prices, the need to diversify the non-renewable resource based economy, and the opportunity for Aboriginal governments to benefit from the development of a renewable resource all indicate that the future in the NWT likely includes hydroelectric development. Building upon the knowledge base of NWT water resources is essential for the protection and preservation of the resource for future generations.

Researchers routinely monitor water quality, quantity, flows and **biological parameters**. Ongoing monitoring is often referred to as long-term or baseline monitoring. It serves as a comparison base prior to a development project being undertaken.

Biological parameters include fish and microscopic plants and animals.

When a substantial development project is proposed, the developer may be asked by the regulatory board to conduct baseline environmental studies. These usually include water quality, quantity and biological monitoring. Compliance monitoring, known as Surveillance Network Programs (SNPs), are generally required as a condition of the water licence. SNPs can help gather a large body of valuable information about the watershed. When the larger scale development project is approved, it may also be required to conduct ongoing monitoring as part of an Aquatic Effects Monitoring Program (AEMP). Guidelines are available to ensure consistent and comparable data results from all AEMPs. Ongoing monitoring and compliance **monitoring programs** are put in place to ensure that water licence conditions are being followed.

Examples of long-term **monitoring programs** are the National Hydrometric Network (operated by the Water Survey of Canada), the NWT Snow Survey Network and the Canadian Aquatic Biomonitoring Network (CABIN) program that studies benthic invertebrates (small animals that live on river or lake bottoms).

Research programs improve our understanding of aquatic ecosystems and ecosystems as a whole. They can focus on potential effects from water uses, address specific aspects of water management, identify influences and relationships affecting water resources, and anticipate how societies and economies may change if the aquatic ecosystems they rely on are disturbed. Combined with sound monitoring, effective research programs contribute to the precision, accuracy and reliability of the information needed for water management decisions.

Current and accurate information is needed for the successful implementation of the Strategy. Results from monitoring and research programs contribute to the continuous improvement of available information and assist in making wise decisions. They help us to understand water processes and changes to the ecosystem, as well as to plan for current and future water uses.

What We Need to Do - Keys to Success

There are a number of monitoring programs, research initiatives, planning efforts and legislation that relate to water stewardship in the NWT. However, more work must be done to strengthen existing efforts, address gaps and improve opportunities for cooperative work. To achieve the vision and goals of the Strategy, we require improved knowledge of the structure and functions of our aquatic ecosystems, along with the water and watershed values associated with them.

Benefits of Monitoring and Research

Effective monitoring and research programs allow us to:

- **Track and measure changes to water quality, quantity, rates of flow and biological parameters over time and space;**
- **Determine what may have caused these changes;**
- **Determine the significance of any changes; and**
- **Determine if we need to modify the way we manage human activities within the watershed or beyond.**

4.2.1 Collectively develop comprehensive monitoring and research programs to understand ecosystem health and diversity

Effective ecosystem-based monitoring programs need to be developed and implemented. Critical gaps in current monitoring programs include the collection of baseline data and long-term monitoring of aquatic ecosystems. Standard protocols are required to ensure data can be readily compared and analyzed. These programs are necessary to understand how we are affecting aquatic ecosystems and to detect changes early. Existing monitoring programs need to be enhanced and coordinated more effectively.

Research contributes to the growing knowledge base that helps us understand the complex relationships within ecosystems and the stresses that are placed on these systems. For example, in the NWT, water resources are highly influenced by seasonal and year-to-year changes in weather and climate along with changes to permafrost.

Accurate and reliable information improves our understanding of water resources, the causes and effects of changes to water resources, and the quantification of the values NWT residents attribute to water resources. Effective monitoring and research programs along with coordinated planning efforts will serve to increase our overall understanding of the functions and processes of specific ecosystems.

4.2.2 Ensure communities have the opportunity to be actively involved and collaborate on research, monitoring and planning initiatives

Protocols are an agreed upon set of rules or code of behaviour.

Water partners that conduct research and monitoring programs generally base their work on established methodologies and **protocols**. When NWT residents and communities lead or are involved in these initiatives through community-based programs, we gain a more holistic understanding of what is being researched or monitored and why. This broader perspective that includes traditional or local knowledge, values and experience helps us improve initiatives. Communities can lead or contribute to identifying issues and values, participating in the planning and design stages, collecting and interpreting information, and reporting results.

Fisheries and Oceans Canada and Indian and Northern Affairs Canada fund community-based monitoring such as the Little Buffalo River water quality program led by the NWT Métis Nation. See Appendix B for more information on this and other water stewardship initiatives.

When communities are directly involved in these initiatives, all water partners benefit from traditional or local knowledge provided and relevant information tends to be more readily shared to make to stewardship decisions.

Newly gained knowledge can be incorporated more effectively and water stewardship decisions adapted accordingly. It is vital that monitoring and research programs that are related to water use in the NWT are responsive to community needs and concerns.

Photo credit: F. Nales

4.2.3 Develop consistent approaches to research and monitoring that will increase our ecosystem understanding

Under current legislation, the governments, agencies and regulatory boards responsible for making decisions must analyze scientific data, traditional knowledge and other information that contribute to our understanding of the cumulative environmental impacts of our uses of land and water, including deposits of waste.

Using consistent approaches to gather information from aquatic ecosystem monitoring and research programs provide the following benefits:

- improved knowledge and understanding of the NWT's water resources for current and future water management decisions.
- enhanced evaluation of the effectiveness of past decisions and the ability to change management practices as required.
- increased understanding of cause and effect relationships from stressors on the environment and the evaluation of the significance of change.
- improved ability to assess potential risks to the aquatic ecosystems and what limits or conditions may need to be set on development.

4.2.4 Report research and monitoring results

Research and monitoring studies are only useful if the results can be applied in decisions. State of the environment or aquatic ecosystem reporting details monitoring and research results which can benefit future work. Agencies, such as governments and the Mackenzie River Basin Board, publish reports that give overviews of the current status of the environment. Research and monitoring results may also be published through research institutes, academic publications or journals. Timely results of state of the environment or aquatic ecosystem reporting are also useful for land-use planners, potential developers, water managers and others.

If community, government, industry, academic and other expertise is shared and methods are put in place to routinely review, monitor and share research, it is easier to define future research and monitoring needs. It also helps to secure the resources necessary to continue these programs. Sharing information means that the identified partners must work together and have a process in place to make sure results can be effectively and regularly reviewed. Ongoing opportunities for information transfer among water partners and researchers ensure water partners are aware of study results and their associated implications.

4.2.5 Advance transboundary discussions, agreements and obligations

The Strategy will inform the NWT's approach to transboundary water agreement negotiations with neighbouring jurisdictions, such as Alberta, Saskatchewan, British Columbia and Nunavut. To advance these negotiations, as well as the implementation of the existing bilateral transboundary water agreement between the NWT and the Yukon, the collection and analysis of relevant information is necessary to make meaningful and effective upstream and downstream decisions that will contribute to the Strategy's goals. Collecting and analyzing information will help identify gaps in knowledge and potentially point to new areas of research that may be required to address specific transboundary issues.

All agreements must respect Aboriginal and treaty rights. The *Mackenzie River Basin Transboundary Waters Master Agreement* and other inter-jurisdictional agreements generally address matters such as the following:

- objectives for healthy ecosystems;
- objectives for quality of surface water and sediments;
- water withdrawal limitations such that water quantity and flows are not affected;
- impacts of development on water, watersheds, aquatic and terrestrial life, groundwater quality and quantity;
- monitoring protocols;
- prior notification protocols;
- consultation mechanisms;
- mitigative measures; and
- dispute resolution protocols.

4.3 Use Responsibly

What We Are Doing

All of us use water in some way. Each of us determines our own actions based on our own knowledge of how we need or want to use water. General legislation and regulations which address environmental contaminants or public health applies to all residents of the NWT. Other legislation applies to those who wish to use a public resource, such as water or land, in certain ways. See Appendix E for a description of water-related roles and responsibilities including relevant legislation.

Generally, the *Mackenzie Valley Resource Management Act*, the *NWT Waters Act* and comprehensive land claim agreements provide the legislative framework for environmental assessments and regulatory approvals in the Mackenzie Valley and the Inuvialuit Settlement Region. Various government departments enforce the terms and conditions of authorizations and permits issued by regulatory boards and agencies under this legislative framework. Other legislation is also important in environmental assessment and regulatory processes and is applied generally to protect or conserve aspects of aquatic ecosystems.

When we plan to use land in a watershed, use the water itself, or deposit waste into water, we may need authorization pursuant to specific legislation. For example, if fish habitats might be altered, an authorization is required. In addition to legislation, we also use guidelines, policies and strategies to inform industry, commercial and community water users. This information ensures each user knows what to consider when using water or depositing waste into water, whether accidentally or on purpose. An overview of current guidelines, policies and agreements is found in Appendix J.

Collectively, all our actions, even those that do not fall under legislation and do not require a water licence or permit, may affect aquatic ecosystems. Therefore, effective water stewardship should consider all uses of water and deposits of waste within each watershed that can individually and collectively affect water resources over time and distance.

What We Need to Do - Keys to Success

In order to achieve the vision and goals of the Strategy, all of us as water partners must take steps to ensure waters and land within shared watersheds are used in a responsible and sustainable manner. Improved cooperation among water managers and interveners in the environmental assessment and regulatory process can facilitate more coordinated decision making. A better understanding of the respective needs of each agency can improve this coordination.

4.3.1 Develop and update guidance and policy documents for water partners to ensure consistent, transparent stewardship actions and decisions

To use water responsibly, we need to consider all of our water uses and pay attention to how these uses are regulated. We need to refer to current guidance and policy documents to help us with our decisions and actions. These documents need to be available, consistent and easy to use for all water partners.

Land and water users and water managers may need clarification on the conditional use of water, including where and under what conditions development activities are supported. This guidance can come from an approved regional land-use plan or designated protected area management plan. In some cases, certain uses may need to be prohibited to protect the health of aquatic ecosystems. In the absence of these plans, water managers must develop a better understanding of the public values and perceptions associated with a development of a particular kind in a particular area. Guidance and policy documents, such as this Strategy, need to consider new knowledge and information on a regular basis.

"We don't manage our water; we can manage human activities and developments."

Richard Binder
Inuvialuit Aboriginal Steering Committee Member for the NWT Water Stewardship Strategy

Photo credit: R. Kennedy

4.3.2 Routinely evaluate current legislation and regulations and amend as required to ensure they effectively achieve their intended purpose

Regulatory improvement initiatives will help to identify how we can do a better job at improving water stewardship in the NWT. Consistent, clear legislation and regulations will help us address risks to water resources and consider the cumulative effects of water and land use on a watershed basis. Considering aquatic ecosystems as we work through regulatory improvement initiatives that can promote water stewardship is important. We must also consider how new information and changes in water uses might require updating legislation and regulations.

4.3.3 Ensure water managers have the capacity to fully promote compliance

Water managers and water users themselves make decisions that affect our water resources. Often these decisions are carried out under legal authorities contained in broad legislation; licences, permits and authorizations; by-laws; and land use plans. When conditions are placed in these types of management tools, compliance with the conditions helps ensure water resources are protected or conserved.

We must develop and implement follow-up and compliance monitoring programs to ensure regulations and conditions within these instruments are being followed. Strategic cooperation among water managers improves the capacity to enforce the conditions of various regulatory authorizations and to seek additional resources as required.

Given the extent of the NWT landscape and its vast amount of water, comprehensively monitoring every part of our watersheds is an immense task. However, increased collaboration and cooperation among water partners can help us be more informed about environmental changes.

4.4 Check Our Progress

What We Are Doing

Audits and **evaluations** provide the "check and balance" that is essential to well-functioning systems. These systems can include ecosystems, social systems and management systems, as well as interactions between these different systems.

Aspects of these routine checks may link to other auditing and reporting programs. Examples of state of knowledge reporting include the *Mackenzie River Basin State of the Aquatic Environment Report* and legislated audits such as the NWT Environmental Audit, a requirement of the *Mackenzie Valley Resource Management Act*. Reports and audits such as these can inform what needs to be completed or what could be completed better. As audits allow for public participation, they are considered open and transparent.

There are also many informal evaluations at an individual program level. These also provide valuable information when assessing programs.

What We Need to Do - Keys to Success

Progress can only be measured when compared to something else. Studies and the best available knowledge from past years need to be shared and recorded, and then considered when making decisions for water users today. It is very important that this information sharing occurs before observations, experiences and data are lost. Traditional, local and western scientific knowledge can be used to determine the current state of the NWT waters. Monitoring and research programs must be long term, timely and relevant to ensure the most accurate information is available.

Photo credit: J. Lativiete

Audits are comprehensive evaluations completed by independent parties. Audits are not necessarily related to money and can evaluate the successes and challenges experienced by programs.

Evaluations are reviews completed by those implementing or involved in a program. These can be internal or external.

4.4.1 Conduct comprehensive evaluations of the Strategy's implementation progress

The first step in evaluating the Strategy's implementation progress is to develop performance indicators. Performance indicators are measureable and are related to the specific actions outlined in the Strategy's Framework for Keys to Success (see Appendix F). Performance indicators allow water partners to evaluate progress toward achieving the Strategy's overall goals. These indicators will assist in assessing and reporting on progress and identifying areas where more effort is needed.

Water partners need to collaborate regularly with each other, communities and residents to best determine how to implement recommendations from audit and evaluation processes. Meetings and workshops are ideal venues to share information, reports on progress and upcoming actions, and to establish potential future collaborations for undertaking priority actions.

It is necessary to check our progress each year, report on results to residents and make adjustments as necessary to ensure we are on track to achieve the Strategy's vision and goals. Effective evaluation on a regular basis will allow water partners to plan and report on progress within their respective organizations.

Photo credit: D. Livingstone

4.5 Summary of Broad Keys to Success

Below is a summary of the actions described under "What We Need to Do" in Section 4.0. These actions form the broad Keys to Success for each of the four components of the Strategy (see Figure 4).

Work Together

- **Develop a cooperative working environment for water partners.**
- **Implement collaborative planning to address capacity issues.**
- **Use best available knowledge to help inform all water partners.**
- **Continue ongoing communication, awareness and engagement among water partners and with the general public.**

Know and Plan

- **Collectively develop comprehensive monitoring and research programs to understand ecosystem health and diversity.**
- **Ensure communities have the opportunity to be actively involved and collaborate on research, monitoring and initiatives.**
- **Develop consistent approaches to research and monitoring that will increase our ecosystem understanding.**
- **Report research and monitoring results.**
- **Advance transboundary discussions, agreements and obligations.**

Use Responsibly

- **Develop and update guidance and policy documents for water partners to ensure consistent, transparent stewardship actions and decisions.**
- **Routinely evaluate current legislation and regulations and amend as required to ensure they effectively achieve their intended purpose.**
- **Ensure water managers have the capacity to fully promote compliance.**

Check Our Progress

- **Conduct comprehensive evaluations of the Strategy's implementation progress.**

"Humans and the environment cannot survive without clean and healthy water."

Northwest Territory Métis Nation

5.0 Moving Forward

As water partners interested in sustaining our water resources for future generations, we are fortunate that a significant amount of work has already been done in the areas of monitoring, research, planning and decision-making to support water stewardship in the NWT. This means that we have the opportunity to learn from past experiences and build on successes as we actively plan for our future.

The Strategy highlights the importance of strengthening relationships, improving communication and working together. It provides a forum for Northerners to share their collective wisdom and identifies Keys to Success that will help water partners move from information to understanding to action – taking what we have observed, analyzing and understanding this information, and then using it to make sound decisions. This is true on a local, regional, territorial and even broader scale.

By working together to define water stewardship roles and responsibilities, we can maximize our efforts and develop a strong action plan that meets the needs and realities of the NWT. Every organization or individual with an interest in water is being asked to come to the table to determine how they can play a role in and/or improve water stewardship activities.

The first Action Plan will be developed with input from Aboriginal leadership, communities, governments, industry, non-government organizations, academics and the public in the coming months. It is scheduled for release in the fall of 2010. A Framework for Keys to Success is included in Appendix F as a starting point to define and prioritize actions in the short, medium and long term.

As circumstances change, and progress is made, it will be necessary to revisit the Action Plan every year to ensure the identified action items are still relevant and the timelines are realistic and to determine the status of our collective progress. Since reporting is a key action area in the Strategy, it is proposed that an annual progress report is prepared to help water partners stay on track in achieving the Strategy's vision. This will allow water partners to respond to any areas of concern in an efficient and effective manner. A comprehensive review of the Strategy should be conducted every five years to identify any gaps, weaknesses or success stories which can be used as examples throughout the NWT and potentially in other jurisdictions.

Continuing dialogue among multiple and diverse parties will help to ensure all ideas and concerns are expressed, heard and addressed. By working together at all levels, we can determine the most appropriate steps for the future. In a coordinated manner, much more can be achieved. This Strategy sets the foundation to ensure the waters of the NWT remain clean, abundant and productive for all time.

Appendix A: Our Water Use

The following two tables highlight types of water uses both within and outside the Mackenzie River Basin. All water bodies in the NWT are used for traditional purposes, including drinking water, hunting, trapping, fishing, spiritual and cultural and transport. They also are used or have the potential to be used for recreational purposes.

Highlights of Human Uses of Water *Within* the Mackenzie River Basin

Sub-basin	Water Body	Uses
Athabasca Basin	Athabasca River	Community water supply Oil sands development Pulp mills Agriculture Forestry, including saw mills Oil and gas Mining and related activities (coal)
	Clearwater River	Canadian Heritage River
	South Heart River	One dam is used for flood control and water supply
	Lesser Slave River	Pulp mills Agriculture
	Paddle River	Dam is used for flood control and water supply
	Pembina River	12% of land use is agriculture Oil and gas Mining and related activities (coal)
	Charlot River	Hydroelectric power production
	Wapiti River	Community water supply Pulp mills Forestry Oil and gas
	Lesser Slave Lake	Agriculture Commercial fishery Community water supply
	Lake Athabasca	Mining and related activities (uranium)

Highlights of Human Uses of Water *Within* the Mackenzie River Basin

Sub-basin	Water Body	Uses
	Peace-Athabasca Delta	RAMSAR Wetland of International Importance UNESCO World Heritage Site
Peace River Basin	Peace River	Oil and gas Mining and related activities (coal) Agriculture Hydroelectric power production
	Williston Lake	Hydroelectric development – reservoir of W.A.C Bennett Dam
Great Slave Basin	Tazin River	Hydroelectric power production through water diversion to Charlot River
	Taltson River	Hydroelectric power production
	Slave River	Community water supply
	Lockhart River	Mining and related activities
	Yellowknife River	Community water supply Mining and related activities (current and historic) Hydroelectric power production
	Snare River	Hydroelectric power production
	Hay River	Agriculture Forestry Oil and gas (Cameron Hills and northern Alberta)
	Great Slave Lake	Commercial fishery Community water supply Mining and related activities (current and historic)

Highlights of Human Uses of Water *Within* the Mackenzie River Basin

Sub-basin	Water Body	Uses
	Snare Lake	Community water supply
Mackenzie-Great Bear Basin	Great Bear River	Hydroelectric potential under study
	Mackenzie River	Community water supply Summer navigation route from Hay River Oil and gas (Norman Wells)
	Keele River	See introduction above
	Arctic Red River	Canadian Heritage River
	Great Bear Lake	Community water supply Important for sport and subsistence fishing Mining and related activities (current and historic)
Liard Basin	Muskwa River	Community water supply Forestry Oil and gas
	Fort Nelson River	Forestry Oil and gas
	South Nahanni River	Canadian Heritage River and UNESCO World Heritage Site Mining and related activities (tungsten) World-renowned recreational destination
	Liard River	Oil and gas
Peel Basin	Peel River	Yukon/NWT Transboundary Agreement Mining and related activities Oil and gas

Highlights of Human Uses of Water *Outside* of the Mackenzie River Basin

Sub-basin	Water Body	Uses
Kazan River Basin	Kazan River	Canadian Heritage River
Dubawnt River Basin	Dubawnt River	See introduction text
Thelon River Basin	Thelon River	Thelon Game Preserve Canadian Heritage River
Back River Basin	Back River	See introduction text
Coppermine River Basin	Coppermine River	Diamond mines in headwaters in the NWT (Lac de Gras)
Hornaday River Basin	Hornaday River	Community water supply Hydroelectric power production Mining and related activities
Horton River Basin	Horton River	See introduction text
Anderson River Basin	Anderson River	Oil and gas
Husky Lakes	Husky Lakes	See introduction text

Many other smaller rivers and creeks in the Mackenzie River Basin are important for traditional use. These include the Kakisa River, Morrissey Creek, Wallice Cree, Bouvier River, Red Knife River, Trout River, Horn River, Birch Creek, Blue Fish Creek, Buffalo River, Rabbit Skin River, Willow River and Lafferty Creek.

Appendix B: Water Stewardship Related Initiatives

This appendix lists a number of planning, program and guidance initiatives that promote water stewardship in the NWT. As more initiatives are implemented or evolve, this list will grow. Those who have an initiative underway are encouraged to share information by contacting the Government of the Northwest Territories' Department of Environment and Natural Resources at 867-920-3258 or nwtwaterstrategy@gov.nt.ca.

Water Use

Managing Drinking Water Quality in the NWT: A Preventative Framework and Strategy

This safe drinking water framework and strategy for the NWT was released in 2005. It is based on a review of other Canadian jurisdictions and the specific needs of the NWT, and includes a regional approach for safe drinking water.
www.pws.gov.nt.ca/pdf/WaterAndSanitation/WaterFramework.pdf

NWT Hydro Strategy (Draft)

This Strategy defines vision, strategies and actions for hydroelectricity and transmission development, as well as explores the potential of hydroelectric power in the NWT.
www.iti.gov.nt.ca/publications/2008/energy/HYDROSTRATEGY.pdf

Canada-wide Strategy for the Management of Municipal Wastewater Effluent

This is a strategy developed in 2009 by the Canadian Council of Minister of the Environment that sets out a harmonized framework to manage discharges from wastewater facilities to better protect human health and the environment.
www.ccme.ca/ourwork/water.html?category_id=81

Land-use plans, including regional land use plans, are developed pursuant to land claims agreements

Regional and community land-use plans create zones designed to protect or conserve certain values. Regional land-use plans may be developed pursuant to land claims agreements or by the people of a region to highlight water values. Plans within the NWT include:

Inuvialuit Community Conservation Plans

These conservation plans are guiding documents and are not legally binding. They are intended for the use of all those with an interest in the planning area, and contain a brief description of the current conservation and resource management system in the Inuvialuit Settlement Region. The plans describe a strategy to address a number of defined goals.
www.screeningcommittee.ca/pdf/ccp/Inuvik_CCP.pdf

Gwich'in Land Use Plan

This plan was developed by the Gwich'in Land Use Planning Board. It is guided by several principles, paying special attention to protecting and promoting the existing and future social, cultural and economic well-being of areas used by Gwich'in residents.
www.gwichinplanning.nt.ca/publications/lupd/final/Gwichin_Plan.pdf

Respect for the Land: The Dehcho Land Use Plan (Draft May 2006)

This land use plan was prepared by the Dehcho Land Use Planning Committee and focuses on the social, cultural and economic well-being of residents of the Dehcho territory. It promotes an integrated land and resource management regime, including a plan for the future development in the region.
www.dehchohands.org/docs/dehcho_final_draft_june_02_06/Final%20Draft%20Dehcho%20Land%20Use%20Plan_June%202-06.pdf

Great Bear Lake Watershed Management Plan

From 2002 to 2005 a detailed planning process was undertaken between Indian and Northern Affairs Canada, the Government of the Northwest Territories and Deline to create the Great Bear Lake Watershed Management Plan. This management plan is for application in the Great Bear Lake Watershed. Outside the watershed, the Sahtu Land Use Plan is applied in the region.
www.srrb.nt.ca/publications/reports/31.05.05_GBLMgmtPlanCa.pdf

Sahtu Land Use Plan (Draft April 2009)

This plan outlines the vision and goals for conservation and development. It specifically focuses on the use of land, waters and other resources, and provides direction through a combination of zoning and terms and conditions.
www.sahtulanduseplan.org/website/web-content/Maps/draft_2/Draft%202%20SLUP_April%2030-09_all%20maps.pdf

Planning Initiatives

Northwest Territories Protected Areas Strategy

The Northwest Territories Protected Areas Strategy was developed in 1999. It outlines a community-based process to establish a network of protected areas throughout the NWT that recognizes the need to balance conservation and economic development, while respecting Aboriginal rights, third party interests and land-use planning processes.
www.nwtpas.ca

NWT Greenhouse Gas Strategy

This strategy was first released in 2001 and identifies a northern approach to mitigate and control greenhouse gas emissions in the NWT.
www.enr.gov.nt.ca/_live/documents/documentManagerUpload/Greenhouse_Gas_Strategy_FINAL.pdf

NWT Energy Plan

This plan was developed in 2007 by the Government of the Northwest Territories' Departments of Industry, Tourism and Investment and Environment and Natural Resources to address the challenges of climate change. Its intent is to find a balance between promoting economic development and maintaining the integrity of the environment.
www.iti.gov.nt.ca/Publications/2007/Energy/Energy%20for%20the%20Future.pdf

Aboriginal Fisheries Strategy

This strategy is applicable to unsettled land claim areas in the NWT. It encourages and enables the establishment of relationships with Aboriginal people and Fisheries and Oceans Canada to promote stable and orderly fisheries management.
www.pac.dfo-mpo.gc.ca/tapd/afs_e.htm

GNWT Traditional Knowledge Policy and Implementation Framework

In 1997, the Government of the Northwest Territories established a government-wide Traditional Knowledge Policy that calls the government to follow a number of principles concerning traditional knowledge.
www.enr.gov.nt.ca/_live/documents/documentManagerUpload/GNWT%20Traditional%20Knowledge%20Implementation%20Framework%20-%202009.pdf

ENR Traditional Knowledge Implementation Plan

This implementation plan is founded on the GNWT Traditional Knowledge Policy and intends to expand and strengthen the application of traditional knowledge within the Department of Environment and Natural Resources and overall within the Government of the Northwest Territories.
www.enr.gov.nt.ca/_live/documents/documentManagerUpload/ENR%20TK%20IP%20-%20March%202009.pdf

Building a Path for Northern Science: GNWT Science Agenda

This strategy is intended to guide territorial government departments in science-related work and acknowledge the importance of science in decision-making processes and agreements.
www.nwtresearch.com/Libraries/Research%20Agenda/Building%20a%20Path%20for%20Northern%20Science.sflb

Programs, Research and Inventories

Federal Water Quality Monitoring Programs

Programs for the collection of long-term baseline water quality data on northern river systems include 25 NWT sites operated by Environment Canada (some of which are located on proposed pipeline routes and at transboundary locations) and 12 water quality sites operated by Indian and Northern Affairs Canada. Water and suspended sediment quality are measured at sites at four transboundary rivers which enter the NWT (Slave, Hay, Liard and Peel Rivers).
www.ainc-inac.gc.ca/ai/scr/nt/env/wr/mn/index-eng.asp

For information on sites operated by Environment Canada, contact 867-669-4749 or wsc@ec.gc.ca.
Indian and Northern Affairs Canada's Water Resources Division can be contacted at 867-669-2655 or NorthwestTerritoriesWaters@inac.gc.ca.

National Hydrometric Network

The National Hydrometric Network is operated by the Water Survey of Canada in partnership with Indian and Northern Affairs Canada and others. It provides near real-time water level data from 85 stations in the NWT. The data is used to calculate stream flow and analyze trends and flooding. Some sites also collect water quality data.
www.ec.gc.ca/rhc-wsc

NWT Snow Survey Network

The snow survey network is operated by Indian and Northern Affairs Canada in partnership with the NWT Power Corporation. This network and the Weather Station Network, which is operated by Indian and Northern Affairs Canada in partnership with the Government of the Northwest Territories' Department of Environment and Natural Resources, collect evaporation data from multiple sites in the NWT.
www.ainc-inac.gc.ca/ai/scr/nt/env/wr/dt/ss/index-eng.asp

Canadian Aquatic Biomonitoring Network Program (CABIN)

This program collects samples of benthic invertebrates as an indicator of water quality. It includes 16 sites operated by Environment Canada and some operated by other parties such as Parks Canada, Fisheries and Oceans Canada and Indian and Northern Affairs Canada.
ec.gc.ca/rcba-cabin

NWT Cumulative Impact Monitoring Program (CIMP)

This program is designed to monitor the cumulative impacts of land and water uses in the NWT. CIMP uses both traditional and western scientific knowledge, placing emphasis on biophysical and human valued components of the environment. CIMP supports a number of projects and programs annually.
www.nwtcimp.ca

Marian Lake Watershed Stewardship Program

This program was initiated by the Wek'èezhìi Land and Water Board, Tłı̨cho Government and Wek'èezhìi Renewable Resource Board. Partly funded through the Cumulative Impact Monitoring Program, it was established to increase inter-connectedness between the different boards and departments. It aims to create a platform for monitoring projects in the Marian Lake area that gathers data, communicates research and supports decision making in a cumulative effects context at the community level. For further information please contact the Wek'èezhìi Land and Water Board at 867-713-2500 or mark_cp@wlwb.ca.
www.nwtcimp.ca

Little Buffalo River Water Quality Program

This program collects a wide range of biophysical information and is run by the NWT Métis Nation in collaboration with Fisheries and Oceans Canada.
www.nwtcimp.ca/documents/cimpProjects/0708/NTFN_LBRWaterQuality_07_08.pdf

Aboriginal Aquatic Resource and Oceans Management Program (AAROM)

This program provides funding to qualifying Aboriginal groups to facilitate the formation of aquatic resource and oceans management organizations that are capable of hiring or contracting skilled personnel to help them effectively participate in decision-making and advisory processes.
www.pac.dfo-mpo.gc.ca/tapd/aarom_e.htm

Ducks Unlimited Canada

Ducks Unlimited Canada conducts wetland inventory work across Canada. For more information contact Ducks Unlimited Canada's Western Boreal Forest Program at 780-489-8110 or richard@ducks.ca.
www.ducks.ca/conserve/programs/boreal/projects.html

Canadian Heritage Rivers System

The Canadian Heritage Rivers System is Canada's national river conservation program which promotes, protects and enhances Canada's river heritage and ensures that Canada's leading rivers are managed in a sustainable manner.
www.chrs.ca

Arctic Climate Impact Assessment

This 2006 report is an integrated assessment of climate change across the Arctic region. A specific section of this assessment deals with climate change impacts on freshwater and fisheries (see Chapter 8 of report).
www.acia.uaf.edu/pages/scientific.html

NWT Climate Change Impacts and Adaptation Report

This 2008 report identifies climate change impacts on infrastructure, ecosystems and people as observed by territorial government departments.
www.enr.gov.nt.ca/_live/documents/documentManagerUpload/NWT_Climate_Change_Impacts_and_Adaptation_Report.pdf

Northwest Territories Protected Areas Strategy Freshwater Classification

The Northwest Territories Protected Areas Strategy has developed a draft coarse-scale freshwater classification system and is compiling finer information on freshwater special features. The classification, along with information compiled in various cultural, ecological and renewable resource reports, helps contribute to a comprehensive inventory of watershed information.
www.nwtpas.ca

Water Licence Reports

Reports submitted by licensees to northern regulatory boards, such as the Mackenzie Valley Land and Water Board (MVLWB), include annual reports that track water use and waste amounts. They also include results from the Surveillance Network Programs (SNP) and aquatic effects monitoring programs (AEMPs) that contain data on various aquatic ecosystem parameters.

Mackenzie Valley Land and Water Board www.mvlwb.com
Sahtu Land and Water Board www.slwb.com
Wek'èezhìi Land and Water Board www.wlwb.ca
Gwich'in Land and Water Board www.glwb.com
Northwest Territories Land and Water Board www.nwtwb.com

NWT Drinking Water Quality Database

The NWT Water Quality Database is updated on a regular basis and shows information about the drinking water quality in the NWT communities.
www.maca.gov.nt.ca/operations/water/homepage.asp

Independent Environmental Monitoring for NWT Diamond Mines

Studies conducted by the independent environmental monitoring agencies for the three diamond mines in the NWT provide valuable information based on both traditional and western scientific knowledge.
www.emab.ca/, www.monitoringagency.net **and** www.slema.ca

NWT Water Today

This is a newsletter focused on water quality and quantity in the Northwest Territories which was released by Indian and Northern Affairs Canada in spring of 2010.
www.ainc-inac.gc.ca/ai/scr/nt/ntr/pubs/index-eng.asp

Appendix C: Aboriginal Steering Committee

The Government of the Northwest Territories' Department of Environment and Natural Resources and Indian and Northern Affairs Canada recognize that in order to be effective, a water stewardship strategy must reflect the voices of the NWT. To ensure Aboriginal water partners were at the decision-making table during the development of the NWT Water Stewardship Strategy, all Aboriginal governments were invited to participate in an Aboriginal Steering Committee (ASC). As a result, ASC members played a key role in guiding the development process and shaping the final Strategy. Designated representatives from the Inuvialuit Regional Corporation, Gwich'in Tribal Council, Sahtu Secretariat Inc., Tłįcho Territory Government, Dehcho First Nations and Northwest Territories Métis Nation participated in a number of meetings since early 2009.

Since the formation of the ASC, the following designated representatives have participated:

Richard Binder, Inuvialuit Regional Corporation

Mardy Semmler, Gwich'in Tribal Council

Freda Taniton and Howard Townsend, Sahtu Secretariat Inc.

Eddie Erasmus and Jolene Huskey, Tłįcho Territory Government

Sam Gargan and Joe Acorn, Dehcho First Nations

Tim Heron, Northwest Territories Métis Nation

Akaitcho Government did not designate a representative

Appendix D: Right To Water Motion

Right To Water Motion (20-15(5))

In March 2007, the 15th Legislative Assembly of the Northwest Territories unanimously passed the following motion:

WHEREAS water is essential to life, and constitutes a fundamental human right;

AND WHEREAS this right includes access to water bodies for purposes of harvesting, travel and navigation, and mechanisms to prevent or seek redress for any action that may affect these rights;

AND WHEREAS this right extends to water as part of a healthy environment and recognizes spiritual and cultural values, taking into consideration the needs of the most disadvantaged and of future generations;

AND WHEREAS on September 7, 2006, in Fort Simpson, representatives of the peoples residing in the vast basin including Lake Athabasca, the Slave River, Great Slave Lake and the Mackenzie River issued the Keepers of the Water Declaration which asserts fundamental human rights with respect to water;

AND WHEREAS the United Nations Committee on Economic, Social and Cultural Rights adopted, on November 26, 2002, the General Comment on the Right to Water, which states that "Water is a limited natural resource and a public good fundamental for life and health. The human right to water is indispensable for leading a life in human dignity. It is a prerequisite for the realization of other human rights;"

AND WHEREAS climate change and the expansion of industrial activity are diminishing the quantity and quality of water in the Mackenzie Basin;

NOW THEREFORE I move...that this Legislative Assembly recognizes that all peoples have a fundamental human right to water that must be recognized nationally and internationally, including the development of appropriate institutional mechanisms to ensure that these rights are implemented;

AND FURTHER that this Legislative Assembly recognizes that this right includes access to water bodies for purposes of harvesting, travel and navigation, and mechanisms to prevent or seek redress for any action that may affect these rights;

AND FURTHERMORE that this Legislative Assembly recognizes that this right must take precedence over the use of water for industrial and commercial purposes;

AND FURTHERMORE that this Legislative Assembly endorses the application of the precautionary approach in all management decisions or actions that may affect the quality, quantity or natural rate of flow of water within the basin;

AND FURTHERMORE that this Legislative Assembly urges all parties to complete and implement comprehensive watershed management and land use plans as soon as possible in order to safeguard water sources and maintain ecosystem integrity across the basin.

March 5, 2007 Northwest Territories Hansard Page 1168-9

Appendix E: Water-related Roles And Responsibilities

Many people use water or deposit waste (e.g., wastewater effluent) into water in the NWT. Since water, including ice and snow melt, moves readily in the environment, multiple activities can affect our aquatic ecosystems. We all have a water stewardship responsibility to make sure our actions do not unduly affect aquatic ecosystems. Some people are charged with specific roles and responsibilities under legislation. The following table highlights the agencies that have water management roles in the NWT.

Titles of legislation and associated regulations are noted on the following pages. More information can be found on the following websites by searching for the titles of acts, regulations, text in the legislation or by jurisdiction.

Justice Canada, Government of Canada
laws.justice.gc.ca/eng/MainPage

Department of Justice, Government of the Northwest Territories
www.justice.gov.nt.ca/Legislation/SearchLeg&Reg.shtml

Canadian Legal Information Institute
www.canlii.org/en/ca/laws

Environment and Natural Resources, Government of the Northwest Territories (ENR - GNWT)

www.enr.gov.nt.ca/_live/pages/wpPages/home.aspx

Water-related Role

(i.e., what the water manager is charged with doing)

At present, the GNWT's direct legislative mandate on water issues is limited to drinking water quality and environmental protection. The authority of Environment and Natural Resources (ENR), as it applies to water resources, is primarily a function of the *Mackenzie Valley Resource Management Act* (MVRMA). ENR also has some authority under other legislation that may touch upon water resources.

Water-related Responsibilities

(i.e., how does the water manager accomplish their goals)

Responsibilities include:

- sustainability of water resources;
- transboundary water negotiations;
- wildlife and forestry management; and
- responsibilities delegated by the federal Minister (as outlined in Section 4 of the *Mackenzie Valley Resource Management Act*) and functioning as the de facto 'responsible minister'.

Relevant Legislation

- *Environmental Protection Act* and Regulations
- *Forestry Management Act* and Regulations
- *Mackenzie Valley Resource Management Act*
- *Pesticides Act* and Regulations
- *Water Resource Agreements Act*
- *Wildlife Act* and Regulations
- *Species at Risk Act*

Additional Notes

A number of useful publications regarding the environment and wildlife can be found at www.enr.gov.nt.ca/_live/pages/wpPages/publications.aspx.

ENR guidelines and regulations are important as handling of hazardous substances or wastes could affect water, including heating fuels or waste oils (see Waste Management Program at above web link).

Health and Social Services, Government of the Northwest Territories (HSS - GNWT)

www.hlthss.gov.nt.ca

Water-related Role

(i.e., what the water manager is charged with doing)

Health and Social Services (HSS) regulates drinking water safety under the authority of the *Public Health Act* and Water Supply System Regulations for the NWT. See the following link: www.hlthss.gov.nt.ca/english/our_system/legislation/legislation_o_to_z.htm#Public_Health_Act.

Water-related Responsibilities

(i.e., how does the water manager accomplish their goals)

Responsibilities under the Water Supply System Regulations include:

- the Chief Public Health Officer (or delegate) approving of the water source;
- the Chief Public Health Officer approving of the design and operation of water treatment plan and distribution system;
- the mandatory certification of water treatment plant operators; and
- minimum water sampling and testing of raw and treated water.

Environmental Health Officers regularly inspect water treatment plants and closely monitor water sampling and testing.

Relevant Legislation

- *Public Health Act* for the NWT
- Water Supply System Regulations

Additional Notes

The regulations adopt the Guidelines for Canadian Drinking Water Quality, making these guidelines regulation in the NWT.

The NWT Drinking Water Sampling and Testing Requirements are summarized in table format at www.hlthss.gov.nt.ca/pdf/brochures_and_fact_sheets/environmental_health/2007/english/nwt_drinking_water_sampling_and_testing_requirements.pdf

Municipal and Community Affairs, Government of the Northwest Territories (MACA - GNWT)

www.maca.gov.nt.ca

Water-related Role

(i.e., what the water manager is charged with doing)

Municipal and Community Affairs (MACA) provides funding to support communities to provide water and sewage services through the Water and Sewer Services Funding Policy. Communities are funded according to a standard cost model. This model assumes a due diligence approach to operations and that community governments will charge consumers for water and sewage services. It also recognizes that there is a "fixed" cost of operations, regardless of consumption.

Water-related Responsibilities

(i.e., how does the water manager accomplish their goals)

Responsibilities include:

- providing classroom and hands-on training to operators;
- offering educational opportunities through the School of Community Government for community officials with respect to water, wastewater and waste disposal;
- assisting in the identification of necessary infrastructure;
- supporting the Senior Administrative Officer (SAO) in the development of the Community Infrastructure Plan;
- recommending alternative funding sources; and
- assisting the SAO in the development of a simple, easy-to-use and understandable Operations and Management and Preventative Maintenance Workplan.

Relevant Legislation

- Canadian Drinking Water Guidelines
- *Commissioner's Lands Act*
- *Emergency Act*
- Guidelines for the Planning, Design, Operations and Maintenance of Modified Solid Waste Sites in the Northwest Territories

Additional Notes

MACA has a community government toolkit available at: www.maca.gov.nt.ca/toolkit/program_responsibilities/water.

Public Works and Services, Government of the Northwest Territories (PWS – GNWT)

www.pws.gov.nt.ca

Water-related Role

(i.e., what the water manager is charged with doing)

Public Works and Services (PWS) and other government departments work together to provide safe drinking water and effective sewage systems in NWT communities. PWS provides support by:

- reviewing the design of government-managed water and sewage projects;
- carrying out inspections and operational reviews of water supply systems;
- undertaking pilot studies for evaluating potential water treatment process upgrades;
- updating and developing technical standards and guidelines;
- commissioning water and sewage systems;
- providing technical assistance during construction;
- training water treatment plant operators;
- providing a link to the National Federal/ Provincial/ Territorial Subcommittee on Drinking Water; and
- keeping up-to-date with current water treatment technologies and water quality issues.

Water-related Responsibilities

(i.e., how does the water manager accomplish their goals)

Responsibilities include:

- providing technical (design, construction, operation and maintenance) and training support;
- offering technical guidance to communities on water, wastewater and municipal waste disposal;
- providing technical expertise in the areas of water treatment operations, troubleshooting, water sampling and testing, water system operator training, water treatment optimization and conducting pilot studies;
- assisting MACA and Senior Administrative Officer (SAO) in the development of a simple, easy-to-use and understandable Operations and Management and Preventative Maintenance Workplan;
- helping MACA undertake a water and sewer system review to identify any gaps;
- providing technical advice to regulatory agencies/ departments (i.e., ENR, HSS) in developing policies or guidelines related to water safety; and
- assisting in the maintenance of a water quality database.

Relevant Legislation

- Canadian Drinking Water Guidelines
- *Public Health Act* for NWT

Additional Notes

PWS staff takes part in, or gives technical advice to, a number of committees related to water quality. These include the Mackenzie Valley Environmental Impact Review Board; regional water and health boards; the NWT Water Committee; and the NWT Water and Waste Association.

More information is available at www.pws.gov.nt.ca/WaterAndSanitation/Index.htm.

Indian and Northern Affairs Canada (INAC)

www.ainc-inac.gc.ca/ai/scr/nt/index-eng.asp

Water-related Role

(i.e., what the water manager is charged with doing)

Indian and Northern Affairs Canada (INAC) manages the NWT's inland and offshore water resources though the administration of the *Northwest Territories Waters Act*, the *Mackenzie Valley Resource Management Act* and Regulations, and the *Arctic Waters Pollution Prevention Act* (AWPPA). INAC has responsibility for non-shipping aspects of the AWPPA. Though responsibility for water is traditionally a provincial issue, INAC has undertaken this responsibility until such time as full devolution takes place.

INAC's overall responsibility for water management is established in Section 5 of the *Department of Indian Affairs and Northern Development Act*, which provides the Minister provincial-type responsibilities for the North. Unless transferred to the territorial government or through self-government agreements, the Crown retains exclusive administration, control and ownership of the water and water rights in the NWT.

INAC's Renewable Resources and Environment Directorate supports the Water Resources Division's roles and responsibilities through its mission of "supporting Northern political and economic development through the management of federal interests and promoting sustainable development of northern communities and natural resources".

INAC's Water Resources Division's vision is "to be a center of excellence, providing high quality valued support and to work collaboratively with other organizations to contribute to a strong, sustainable water resources management process in the NWT".

Water-related Responsibilities

(i.e., how does the water manager accomplish their goals)

INAC's responsibilities include the development, implementation and interpretation of water management legislation and policy in the NWT. This includes:

- licencing under the waters legislation;
- enforcement and compliance (under the *Northwest Territories Waters Act* and water licence inspections);
- water data collection (in collaboration with the GNWT and Environment Canada); and
- water planning (watersheds and site-specific research programs).

INAC's Indian and Inuit Affairs Division provides assistance and funds to assist with water and wastewater services within reserve communities.

INAC's Water Resources Division provides expert advice for the protection of water quality and is responsible for the water management in Nunavut and the NWT. It is also responsible for:

- developing and managing scientific programs which include the collection, analysis, interpretation, and distribution of water quantity/quality information, and conducting specific aquatic ecosystem studies;
- developing guidelines and codes of practice for water resource management and monitoring;
- providing ongoing expert scientific and technical advice to a wide range of clients in the NWT; and
- collecting water quantity/quality information at INAC federal contaminated sites.

INAC's Water Resources Division's roles and responsibilities support four goals:

- developing and maintaining scientific and technical expertise;
- supporting clients with scientific and technical expertise;
- establishing and strengthening working relationships with clients; and
- fostering internal knowledge creation and management.

Relevant Legislation

- *Northwest Territories Waters Act*
- *Mackenzie Valley Resource Management Act*
- *Canadian Environmental Assessment Act*
- *Arctic Waters Pollution Prevention Act*
- *Canada Water Act*
- *Department of Indian Affairs and Northern Development Act*
- Applicable land, resource and self-government agreements throughout the NWT

Additional Notes

Clients include:

- land and water boards,
- the Mackenzie Valley Environmental Impact Review Board,
- other federal departments and agencies,
- Aboriginal governments,
- community organizations,
- other provinces/territories,
- non-government organizations,
- industry, and
- the public.

Environment Canada (EC)

www.ec.gc.ca

Water-related Role

(i.e., what the water manager is charged with doing)

Environment Canada (EC) seeks to protect the environment and to conserve Canada's natural heritage for present and future generations. Science plays a fundamental role in enabling EC to support informed decision making, regulatory approaches and delivery of services.

In relation to water, this approach includes:

- roles that involve monitoring water quality;
- investing in water research, developing regulations where warranted;
- supporting inter-jurisdictional water agreements, limited enforcement/permitting related to toxic and polluting substances;
- developing national policies and standards related to aquatic pollutants and water quality standards;
- reducing pollution at the source;
- promoting of ecosystem approaches; and
- protecting of migratory birds.

Water-related Responsibilities

(i.e., how does the water manager accomplish their goals)

EC's responsibilities for freshwaters are shared with federal departments, provincial and territorial governments. These include:

- collecting water quantity and quality data focused on National Parks and Reserves and the Mackenzie Valley in partnership with Indian and Northern Affairs Canada (INAC) and the Government of the Northwest Territories;
- operating the NWT Hydrometric Network which is administered and delivered by EC in conjunction with INAC;
- engaging in water planning through participation in multi-government initiatives (e.g., land use plans, NWT Protected Areas Strategy, environmental assessment processes, etc.);
- providing technical support where required to transboundary water agreement discussions on quality and flow allocation through the Mackenzie River Basin Board;
- enforcing water quality legislation such as the Metal Mining Effluent Regulations and future Wastewater Effluent Regulations (2014) under the *Fisheries Act*, Migratory Birds Regulations under the *Migratory Birds Convention Act* including pollutant discharge into waters containing migratory bird populations and the *Canadian Environment Protection Act* including ocean disposal; and
- evaluating water quality protection measures for the environmental assessments of projects screened under the *Mackenzie Valley Resource Management Act* and for the subsequent issuance of water licenses by the NWT Water Board.

Relevant Legislation

- *Canadian Environmental Assessment Act* (Inuvialuit Settlement Region)
- *Migratory Birds Convention Act* – Section 5.1
- *Canadian Environmental Protection Act*
- Disposal at Sea Regulations
- *Canada Water Act*
- *Department of Environment Act*
- *Fisheries Act* – Section 36 (deleterious substances)
- Metal Mining Effluent Regulations
- Wastewater Effluent Regulations (proposed)
- Applicable land, resource and self-government agreements throughout the NWT

Fisheries and Oceans Canada (DFO)

www.dfo-mpo.gc.ca/index-eng.htm

Water-related Role

(i.e., what the water manager is charged with doing)

Fisheries and Oceans Canada's (DFO) overall responsibilities are established in the *Fisheries Act*. The Department has developed a new vision for safe, healthy, productive waters and aquatic ecosystems (including habitat). This has been done for the benefit of present and future generations, and is accomplished by maintaining the highest possible standards of service to Canadians; marine safety and environmental protection; scientific excellence; and conservation and sustainable resource use.

Water-related Responsibilities

(i.e., how does the water manager accomplish their goals)

DFO's responsibilities for freshwaters are shared with federal departments, provincial and territorial governments. The Department's plans, policies and programs support five long-term goals:

- managing and protecting fisheries resources (including habitat);
- protecting the marine and freshwater environment;
- understanding ocean and aquatic resources;
- maintaining marine safety; and
- facilitating maritime commerce and ocean development.

Relevant Legislation

- *Fisheries Act* and Regulations
- Canada-Yukon Accord for Freshwater Fisheries Management
- *Freshwater Fish Marketing Act*
- *International Boundary Waters Treaty Act*
- *Canadian Environmental Assessment Act*
- *Mackenzie Valley Resource Management Act*
- *Canada Shipping Act*
- *Oceans Act*
- *Species at Risk Act*
- Applicable land, resource and self-government agreements throughout the NWT

Additional Notes

Key policies and guidance documents include:

- Sustainable Fisheries Framework,
- Recreational Fisheries in Canada,
- Aquatic Invasive Species,
- Policy for the Management of Fish Habitat
- Aboriginal Fisheries Strategy,
- National Water Policy (under development), and
- land claim implementation and co-management agreements.

National Energy Board (NEB)

www.neb.gc.ca/clf-nsi/rcmmn/hm-eng.html

Water-related Role

(i.e., what the water manager is charged with doing)

The National Energy Board (NEB) is an independent federal agency that regulates international and interprovincial aspects of the oil, gas and electric utility industries. The purpose of the NEB is to regulate pipelines, energy development and trade in the Canadian public interest. The NEB is accountable to Parliament through the Minister of Natural Resources Canada.

The *Canadian Environmental Assessment Act* process is initiated when a company submits an application to the NEB which triggers the Act, and the NEB determines that it is a Responsible Authority (RA). The NEB considers the level of environmental assessment required under the *Canadian Environmental Assessment Act* (i.e., screening, comprehensive study or panel review) and identifies other possible RAs and Federal Authorities (FAs) who may have an interest in the project. The assessment is conducted within the *National Energy Board Act* process.

The NEB conducts environmental assessments for proposed projects in accordance with the *Canadian Environmental Assessment Act* and other federal environmental assessment processes in the Northwest Territories, Nunavut and the Yukon

Water-related Responsibilities

(i.e., how does the water manager accomplish their goals)

NEB responsibilities for freshwaters are shared with federal agencies, provincial and territorial governments, and land claim organizations that maintain direct land and water jurisdictions.

Under the *National Energy Board Act*, the NEB has assumed a mandate for environmental protection through legislative general application and public interest. The NEB also has responsibilities under the *Canadian Environmental Assessment Act* to ensure that projects receive appropriate levels of assessment before proceeding. The NEB's environmental

responsibility includes ensuring that the environment is protected during planning, construction, operation and abandonment of energy projects within its jurisdiction.

The NEB regulates:

- interprovincial and international pipelines;
- pipeline transportation, tolls and tariffs;
- international and designated interprovincial power lines;
- exports of oil, natural gas and electricity; and
- frontier oil and gas activities (Canada Oil and Gas Operations Act) outside of Accord areas (i.e., NWT, Nunavut and Yukon).

Memorandums:

Several memorandums of understanding pertaining to the environmental assessment process for the Mackenzie Gas Project have been signed by the NEB with the Inuvialuit, Mackenzie Land and Water Board, Northwest Territories Water Board, Mackenzie Valley Environmental Impact Review Board, Gwich'in Land and Water Board, Sahtu Land and Water Board, Canadian Environmental Assessment Agency, Indian and Northern Affairs Canada, Fisheries and Oceans Canada, Environment Canada, Transport Canada and the Government of the Northwest Territories between 2002 and 2005.

Relevant Legislation

- *National Energy Board Act*
- *Canadian Environmental Assessment Act*
- *Indian Oil and Gas Act*
- *Canada Oil and Gas Operations Act*
- Applicable land, resource and self-government agreements throughout the NWT

Transport Canada (TC)

www.tc.gc.ca/eng/tc-main.htm

Water-related Role

(i.e., what the water manager is charged with doing)

Transport Canada (TC) has the legislative lead for all ship transportation and safety under the *Arctic Waters Pollution and Prevention Act*, along with the Canadian Coast Guard. TC conducts environmental assessments for proposed projects in accordance with the Canadian Environmental Assessment Agency and other federal environmental assessment processes in the NWT, Nunavut and the Yukon.

Water-related Responsibilities

(i.e., how does the water manager accomplish their goals)

TC's responsibilities for freshwaters are shared with federal departments, provincial and territorial governments. The Department ensures that its mandate is appropriately addressed by the *Canadian Environmental Assessment Act* and northern environmental assessment processes.

TC's program activities support the Department's commitment to a safe and secure transportation system that is environmentally responsible and innovative. TC supports the Government of Canada's environmental agenda through transportation policies, regulations and programs that work towards cleaner air and water.

Relevant Legislation

- *Navigable Waters Protection Act*
- *National Energy Board Act* – Section 108
- *Arctic Waters Pollution Prevention Act*
- Applicable land, resource and self-government agreements throughout the NWT

Parks Canada (PC)

www.pc.gc.ca/eng/index.aspx

Water-related Role

(i.e., what the water manager is charged with doing)

The *Canada National Parks Act* (CNPA) and the *National Historic Site and Monuments Act* define Parks Canada's (PC) national mandate, along with its legislative and stewardship role. PC administers and manages the following water resources: Aulavik, Nahanni, Tuktut Nogait and Wood Buffalo National Parks and Reserves, Saoyu-Ahdacho National Historic Site and the Pingo Canadian Landmark. The Minister for Parks Canada is the designated Minister under the *Species at Risk Act* for aquatic species at risk in waters administered by the department.

PC's water resource management activities are guided by the CNPA. Section 8(2) of this act states that "maintenance and restoration of ecological integrity, through the protection of natural resources and natural processes, shall be the first priority when considering all aspects of the management of parks".

PC's main goal is to manage National Parks and water resources for the benefit, education and enjoyment of all Canadians, and to maintain and use these resources in order to leave them unimpaired for the enjoyment of future generations.

Water-related Responsibilities

(i.e., how does the water manager accomplish their goals)

PC's responsibilities for fresh waters are shared with federal departments, provincial and territorial governments.

National Parks and Reserves, the Pingo Canadian Landmark and Saoyu-Ahdacho National Historic Site have the following roles:

- work with various environmental assessment agencies and other federal departments to ensure appropriate application of environmental assessment processes for projects within National Parks, National Marine Conservation Areas and National Historic Sites;
- develop, manage and implement scientific research and monitoring programs (collection, analysis, interpretation and distribution of water quality and quantity information);
- conduct specific aquatic ecosystem studies;
- issue research and collection permits;
- regulate sport fishing and manage fish species and fish habitat;
- provide scientific and technical expertise;
- develop freshwater ecosystem ecological integrity indicators, thresholds and targets; and
- enforce the CNPA and Regulations (regulations respecting soil; water and air quality; the management and regulation of fishing; the prevention and remedying of any obstruction or pollution of waterways; the restriction or prohibition of activities and the control of the use of park resources; the establishment, operation, maintenance and administration of works and services of a public character such as water and sewage; the establishment, maintenance, administration and use of wharves, docks, bridges, and other improvements; and the preservation of public health and the prevention of disease).

Relevant Legislation

- *Parks Canada Agency Act*
- *Canada National Parks Act* and Regulations
- *Canada National Marine Conservation Areas Act*
- *Historic Sites and Monument Act*
- *Contraventions Act*
- Applicable land, resource and self-government agreements

- Various Park Establishment Agreements and Impact and Benefit Agreements
- *Species at Risk Act*
- *Dominion Water Power Act*
- *Department of Transport Act*
- Various environmental assessment legislations (*Canadian Environmental Assessment Act*, Inuvialuit Final Agreement, *Mackenzie Valley Resource Management Act*)
- *Fisheries Act*
- *Migratory Birds Convention Act*
- *Canadian Environmental Protection Act*

Additional Notes

Presently, PC manages water resources on 3.5% of the Northwest Territories' landmass; this will increase substantially as proposed sites are being added to the National Parks and National Historic Sites system.

Mackenzie Valley Environmental Impact Review Board (MVEIRB)

www.reviewboard.ca

Water-related Role

(i.e., what the water manager is charged with doing)

The Mackenzie Valley Environmental Impact Review Board's (MVEIRB) mission is to conduct quality environmental impact assessments that protect the environment and the social, economic and cultural well-being of the residents of the Mackenzie Valley and all Canadians.

Water-related Responsibilities

(i.e., how does the water manager accomplish their goals)

There are three stages in the environmental impact assessment process in the Mackenzie Valley.

1. Preliminary Screening

   All proposed developments that require a license, permit, or other authorization must apply and go through a preliminary screening. A land and water board or other regulating authority runs this process. Preliminary screening is a quick review of a proposed development's application to decide if the development might have significant adverse impacts on the environment, or might cause public concern. If so, the application is referred to the second stage - environmental assessment. If not, then the application can be sent to the regulator for permitting and licensing. MVEIRB issues guidelines on how to conduct a screening and it has the discretion to override a screening and conduct an environmental assessment if deemed necessary.

2. Environmental Assessment

   This stage is a more thorough study of a proposed application to decide if the development is likely to have significant adverse impacts on the environment, or likely to cause public concern. If so, MVEIRB may recommend to the federal Minister that:

   a) the project can proceed to regulatory permitting and licensing as is;

   b) the project can proceed to regulatory permitting and licensing provided some measures are in place; or

   c) the project should be rejected.

   Alternatively, MVEIRB may order an environmental impact review for a more detailed review by an independent panel.

3. Environmental Impact Review

   An environmental impact review follows an environmental assessment when MVEIRB deems a more comprehensive examination of a proposed development is needed. The review is conducted by an independent panel, which may consist of both MVEIRB and non-MVEIRB members. All members of the panel are appointed by the Board.
   The environmental impact review provides a more focused study of the issues raised during the environmental assessment.

Relevant Legislation

- *Mackenzie Valley Resource Management Act* and Regulations

Additional Notes

- As a co-management board, Aboriginal land claim organizations nominate half of MVEIRB's board members, and the federal and territorial governments nominate the other half of the members. The Minister of Indian Affairs and Northern Development appoints all the members.
- Other boards or organizations with referral power may ask MVEIRB to conduct environmental assessments and environmental impact reviews as the situation merits.
- MVEIRB must also contact Indian and Northern Affairs Canada or the National Energy Board with its finding.
- MVEIRB is not the final decision-maker; it provides recommendations to the Minister of Indian Affairs and Northern Development and the other responsible ministers.

Mackenzie Valley Land and Water Board (MVLWB)

www.mvlwb.com

Water-related Role

(i.e., what the water manager is charged with doing)

The Mackenzie Valley Land and Water Board (MVLB) is charged with:

- the regulation of water and the deposit of waste in order "to provide for the conservation, development and utilization of land and water resources in a manner that will provide the optimum benefit to the residents of the settlement area, the Mackenzie Valley and to all Canadians"; and
- considering "the importance of conservation to the well-being and way of life of the Aboriginal peoples of Canada" as per their constitutional duties.

See the following web links for more information.
www.mvlwb.com/html/mandate.htm
www.mvlwb.com/doc/MVLWB_AAR_07.pdf

Water-related Responsibilities

(i.e., how does the water manager accomplish their goals)

Responsibilities include:

- issuing land use permits and water licenses in unsettled claims areas in the Mackenzie Valley;
- processing transboundary land and water use applications in the Mackenzie Valley;
- ensuring consistency in the application of the legislation throughout the Mackenzie Valley; and
- conducting the preliminary screenings for development proposals to determine if there are adverse environmental impacts or public concern, which may lead to the Mackenzie Valley Environmental Impact Review Board carrying out an environmental assessment or environmental impact review.

Relevant Legislation

- *Mackenzie Valley Resource Management Act* and Regulations
- *Northwest Territories Water Act* and Regulations

Additional Notes

- The *Mackenzie Valley Resource Management Act* (MVRMA) was enacted as a result of the Gwich'in and Sahtu comprehensive land claims being settled.
- The The *Mackenzie Valley Resource Management Act* (MVRMA) establishes and sets out the membership of the MVLWB and regional land and water boards.
- The MVLWB is comprised of five members from the Gwich'in Land and Water Board, five members from the Sahtu Land and Water Board, five members from the Wek'èezhìi and five members that are not part of a regional panel.

Sahtu Land and Water Board (SLWB)

www.slwb.com

Water-related Role

(i.e., what the water manager is charged with doing)

The Sahtu Land and Water Board (SLWB) is charged with regulating the use of land and water to ensure that development activities in the settlement area do not have adverse impacts on the land, water or the environment.

Water-related Responsibilities

(i.e., how does the water manager accomplish their goals)

Responsibilities include:

- issuing, amending or renewing licenses, permits and authorizations along with the associated terms and conditions;
- overseeing compliance issues and taking the appropriate actions which may include suspension or cancellation of license, permits and authorizations;
- establishing policies and guidelines applicable to its licenses, permits and authorizations;
- holding public consultations;
- establishing procedures for the conduct of business;
- proposing changes to legislation; and
- establishing rules and procedures, including reasonable fixed time limits for the negotiation of agreements (Sahtu Dene Final Agreement 25.4.5).

Relevant Legislation

- *Mackenzie Valley Resource Management Act* and Regulations
- *Northwest Territories Waters Act* and Regulations
- Sahtu Dene and Métis Comprehensive Land Claim Agreement

Gwich'in Land and Water Board (GLWB)

www.glwb.com

Water-related Role

(i.e., what the water manager is charged with doing)

The Gwich'in Land and Water Board (GLWB) is charged with regulating the use of land and water to ensure that development activities in the settlement area do not have adverse impacts on the land, water or the environment.

Water-related Responsibilities

(i.e., how does the water manager accomplish their goals)

Responsibilities include:

- issuing, amending or renewing licenses, permits and authorizations along with the associated terms and conditions;
- establishing policies and guidelines applicable to its licenses, permits and authorizations;
- overseeing compliance issues and taking the appropriate actions which may include suspension or cancellation of license, permits and authorizations;
- holding public consultations;
- establishing procedures for the conduct of business;
- proposing changes to legislation; and
- establishing rules and procedures, including reasonable fixed time limits for the negotiation of agreements (Gwich'in Final Agreement 24.4.5).

Relevant Legislation

- *Mackenzie Valley Resource Managment Act* and Regulations
- *Northwest Territories Water Act* and Regulations
- Gwich'in Final Agreement

Wek'èezhìi Land and Water Board (WLWB)

www.wlwb.ca

Water-related Role

(i.e., what the water manager is charged with doing)

The Wek'èezhìi Land and Water Board (WLWB) is charged with regulating the use of land and water to ensure that development activities in the settlement area do not have adverse impacts on the land, water or the environment.

Water-related Responsibilities

(i.e., how does the water manager accomplish their goals)

Responsibilities include:

- issuing, amending or renewing licenses, permits and authorizations along with the associated terms and conditions;
- establishing policies and guidelines applicable to its licenses, permits and authorizations;
- overseeing compliance issues and taking the appropriate actions which may include suspension or cancellation of license, permits and authorizations;
- holding public consultations;
- establishing procedures for the conduct of business;
- proposing changes to legislation; and
- establishing rules and procedures, including reasonable fixed time limits for the negotiation of agreements (Tłı̨cho Final Agreement 22.3.14).

Relevant Legislation

- *Mackenzie Valley Resource Management Act* and Regulations
- Tłı̨cho Agreement

NWT Water Board (NWTWB)

www.nwtwb.com/index.html

Water-related Role
(i.e., what the water manager is charged with doing)

The NWT Water Board (NWTWB) is charged with regulating the use of land and water to ensure that development activities in the Inuvialuit Settlement Region (ISR) do not have adverse impacts on the land, water or the environment.

It should be noted that the NWTWB's mandate only extends to water resources and water licenses issued within the ISR.

Water-related Responsibilities
(i.e., how does the water manager accomplish their goals)

Responsibilities include:

- issuing licenses (Type A or B) for the use of any waters or disposal of any waste within the NWTWB management area;
- conducting preliminary screenings or making referrals to environmental assessment based on the potential for adverse environmental impacts or public concern; and
- conducting screenings and assessments are conducted according to the *Canadian Environmental Assessment Act*.

Relevant Legislation

- Inuvialuit Final Agreement
- *Northwest Territories Waters Act* and Regulations

Additional Notes

- All licences are reviewed by a Technical Advisory Committee.
- Type A water licences require a public hearing.
- Indian and Northern Affairs Canada is directly responsible for monitoring; however the NWTWB has some duties to ensure the license conditions are met.
- Projects carried out on Crown land in the ISR are subject to the review process developed by the Environmental Impact Screening Committee.

Environmental Impact Review Board (EIRB)

www.eirb.ca/resources/co-management.html

Water-related Role
(i.e., what the water manager is charged with doing)

Under the Inuvialuit Final Agreement (IFA), the Environmental Impact Review Board (EIRB) for the Inuvialuit Settlement Region (ISR) is mandated to carry out the public review of development projects referred to it by the Environmental Impact Screening Committee (EISC). The EIRB makes recommendations to the body empowered to authorize development. Recommendations may include remedial or mitigative measures to minimize impacts. Licenses or approvals will not be issued for any proposed development until the environmental impact screening and review provisions of the IFA are followed.

Water-related Responsibilities
(i.e., how does the water manager accomplish their goals)

Responsibilities include supporting the EISC and NWT Water Board (NWTWB) in the ISR with public reviews of development projects.

Relevant Legislation

- Inuvialuit Final Agreement

Additional Notes

EIRB supports both the EISC and NWTWB.

Environmental Impact Screening Committee (EISC)

www.screeningcommittee.ca/index.html

Water-related Role

(i.e., what the water manager is charged with doing)

The Environmental Impact Screening Committee (EISC) conducts environmental screening of development activities proposed for the Inuvialuit Settlement Region (ISR). It decides whether a development may have a negative impact on the Inuvialuit people or wildlife.

Developments activities considered include: permit or licence applications for mineral exploration and extraction; oil and gas exploration/production; municipal or industrial site clean-up and restoration; granting of water rights; commercial tourism ventures; and land use associated with government sponsored or funded research.

Water-related Responsibilities

(i.e., how does the water manager accomplish their goals)

The EISC can make one of four determinations with regards to proposed development:

- **The development will have no significant negative impact and may proceed without an environmental impact assessment and review under the Inuvialuit Final Agreement (IFA);**
- **The development, if authorized is subject to environmental terms and conditions recommended by the EISC, will have no such negative impact and may proceed without an environmental impact assessment and review under the IFA;**
- **The development could have significant negative impact and is subject to assessment and review under the IFA; or**
- **The development proposal has deficiencies of a nature that warrant a termination of its consideration and the submission of another project description.**

Relevant Legislation

- **Inuvialuit Final Agreement**

Canadian Environmental Assessment Agency (CEAA)

www.ceaa.gc.ca/default.asp?lang=En

Water-related Role

(i.e., what the water manager is charged with doing)

The Canadian Environmental Assessment Agency (CEAA) is a federal body accountable to the Minister of the Environment. The Agency works to provide Canadians with high-quality environmental assessments that contribute to informed decision making, in support of sustainable development.

Water-related Responsibilities

(i.e., how does the water manager accomplish their goals)

Responsibilities include:

- **administering the *Canadian Environmental Assessment Act*;**
- **encouraging public participation since protecting the environment is everyone's business;**

- advancing the science and practice of environmental assessment through research and development;
- promoting high-quality assessments through training and guidance;
- providing administrative and advisory support for review panels, mediations, comprehensive studies and class screenings; and
- promoting the use of strategic environmental assessments as a key tool to support sustainable decision making.

Relevant Legislation

- *Canadian Environmental Assessment Act*

Additional Notes

CEAA works to support the Environmental Impact Screening Committee and the NWT Water Board in the Inuvialuit Settlement Region.

Aboriginal Governments

www.daair.gov.nt.ca/_live/pages/wpPages/home.aspx

Water-related Role

(i.e., what the water manager is charged with doing)

Regional Aboriginal governments and First Nations are a primary participants in water management in the NWT. Each plays an active role in ensuring water in their traditional territory is well stewarded and that obligations under land, resource and self-government agreements are fulfilled. Agreements require that the waters flowing through a territory remain substantially unaltered in water quality, quantity and rates of flow.

The stewardship role is championed by various land and resource councils, and boards and committees who undertake numerous activities or participate in partnership activities related to water stewardship and watershed management.

Water-related Responsibilities

(i.e., how does the water manager accomplish their goals)

Responsibilities include:

- reviewing all resource license applications and providing comments and/or recommendations to the boards;
- participating, including intervening, in public consultations; and
- nominating resource management board members.

Examples of activities undertaken include development of and participation in land and water-related programs, policy and strategies such as the Cumulative Impact Monitoring Program (CIMP), Environmental Stewardship Framework (ESF), NWT Protected Areas Strategy (PAS) and Northern Contaminants Program (NCP). Aboriginal governments often lead specific projects related to water stewardship through these and other funding programs.

Relevant Legislation

- Land, resource and self-government agreements
- Other agreements, including interim measures agreements (IMAs)

Additional Notes

It is important to note that Aboriginal governments have overlapping agreements with other regions and territories (i.e., Yukon, and an upcoming agreement with Nunavut). Aboriginal governments must be consulted regarding the development of transboundary water management agreements under the *Mackenzie River Basin Transboundary Waters Master Agreement*. Aboriginal governments are also planning partners in land use or watershed planning, including transboundary watersheds.

Appendix F: Framework for Keys To Success

This Framework for Keys to Success outlines anticipated actions under the broad Keys to Success identified in the Strategy (see Section 4.0). These actions will be further detailed in an Action Plan anticipated for fall 2010.

Ongoing: over the course of Strategy implementation

Short term: May 2010 - May 2011

Medium term: May 2011 - May 2013

Long term: May 2013 - 2020

ENR: Environment and Natural Resources, GNWT

INAC: Indian and Northern Affairs Canada

GNWT: Government of Northwest Territories

Canada: Indian and Northern Affairs Canada, Environment Canada, Fisheries and Oceans Canada and potentially other federal agencies

LWBs: Land and Water Boards – including the Mackenzie Valley Land and Water Board, Wek'èezhìi Land and Water Board, Sahtu Land and Water Board and Gwich'in Land and Water Board

NWTWB: Northwest Territories Land and Water Board

Work Together

Develop a cooperative working environment for water partners (see Section 4.1.1)

Keys to Success	Timeframe	Key Players
Integrate the NWT Water Stewardship Strategy with current territorial watershed and natural resource planning and management frameworks, such as the Environmental Stewardship Framework	Ongoing	ENR/INAC
Initiate a process to identify and resolve issues impeding coordinated watershed data collection, sharing and management decisions through a collaborative process	Short term	ENR/INAC
Develop clear descriptions of the roles and responsibilities of water partners and communicate these roles and responsibilities to all interested parties	Short term	ENR/INAC
Assess need for and develop guidance mechanisms to provide consistency and transparency in decisions	Medium term	ENR/INAC/LWBs

Implement collaborative planning to address capacity issues (see Section 4.1.2)

Keys to Success	Timeframe	Key Players
Conduct regular needs assessments to identify capacity challenges, shortfalls and opportunities through various means including audits, performance reviews, conferences and workshops	Ongoing	ENR/INAC
Develop community capacity to strengthen involvement in water stewardship through effective community-based monitoring programs	Ongoing	GNWT/Canada
Conduct a comprehensive inventory of capacity limitations and challenges; capacity building initiatives (including educational and training programs); and, opportunities for funding and other support	Short term	ENR/INAC
Identify and facilitate the development of partnerships that support NWT water stewardship	Short term	ENR/INAC

Use best available knowledge to help inform all water partners (see Section 4.1.3)

Keys to Success	Timeframe	Key Players
Develop and update compatible or common information databases	Ongoing	ENR/INAC
Implement data collection, sharing and communication protocols and tools to ensure data and knowledge are collected effectively and efficiently transmitted to decision makers at all levels	Ongoing	ENR/INAC
Inventory all traditional knowledge protocols already completed by Aboriginal, territorial and federal governments, communities and regions	Short term	ENR/INAC
Support the development of traditional knowledge protocols where needed	Short term	ENR/INAC
Identify existing water stewardship communication tools and add and adapt for NWT audience	Short term	ENR
Develop management decision models that identify appropriate ways to apply traditional, local and western scientific knowledge to management decisions through a collaborative process	Medium term	ENR/INAC

continued on next page...

Keys to Success	Timeframe	Key Players
Review current traditional knowledge protocols and implement a process where current protocols can be modified or new ones developed so that research is carried out in an effective and respectful manner and supports all elements of the Strategy	Medium term	ENR

Continue ongoing communication, awareness and engagement among water partners and with the general public (see Section 4.1.4)

Keys to Success	Timeframe	Key Players
Work with water partners and other organizations to collect water resources information	Ongoing	ENR/INAC
Undertake engagement and hold regular conferences of NWT water partners in communities, regions and central agencies	Ongoing	ENR/INAC
Prepare a comprehensive inventory of water use information, on a watershed basis, and update it regularly	Ongoing	ENR/INAC
Host regular conferences for water partners to provide updates on the status of Strategy-related undertakings	Ongoing	ENR/INAC
Develop public education and information plans to enhance the knowledge and awareness of NWT residents and other Canadians about the importance of NWT water and water issues	Ongoing	GNWT/Canada
Complete a comprehensive inventory of watershed information available for the NWT	Short term	ENR/INAC
Develop an NWT Water Stewardship Strategy website	Short term	ENR

Know and Plan

Collectively develop comprehensive monitoring and research programs to understand ecosystem health and diversity (see Section 4.2.1)

Keys to Success	Timeframe	Key Players
Establish a network of partners prepared to commit resources to the research and monitoring priorities	Ongoing	ENR
Conduct research including traditional knowledge research on receiving water standards; thresholds and carrying capacity; sensitivity of northern aquatic species to toxins produced by industrial activities; monitoring indicators; and, the effects of climate change on ecosystems, water quality and water quantity in the NWT	Ongoing	ENR/INAC
Establish a pilot study for community source water protection that links aquatic ecosystem indicator development and community-based monitoring	Short term	GNWT
Research aquatic ecosystem indicators that could be used in the NWT to detect changes in aquatic ecosystem health and produce a discussion paper	Short term	ENR
Collaborate and lead an expert's workshop on aquatic ecosystem monitoring indicators	Short term	GNWT/ Canada/ LWBs
Complete an overview report on status of remote sensing capacity and capabilities, as well as options to improve remote sensing operations in the NWT in collaboration with relevant partners	Short term	ENR
Enhance remote sensing capacity and capabilities in the NWT to enable high quality and cost-effective collection of water-related data and information	Medium term	ENR
Evaluate water quality and water quantity monitoring needs within established or candidate protected areas	Medium term	ENR/INAC

continued on next page...

Keys to Success	Timeframe	Key Players
Identify and prioritize gaps in existing water-related research and monitoring programs. Analysis should draw on existing studies including traditional knowledge research and consider the findings and recommendations of the NWT Environmental Audit, the Northern River Basins Study, and other initiatives.	Medium term	Canada
Develop methodologies regarding valuation of ecosystem services in partnership with knowledgeable researchers and communities	Long term	ENR
Improve data management, reporting and analysis capabilities for Surveillance Network Programs administered by regulatory boards and other water-related reporting programs	Long term	INAC/ LWBs/ NWTWB
Expand existing water quality and water quantity network of monitoring stations for surface and groundwater at sites identified through a comprehensive planning process	Long term	INAC/EC/GNWT

Ensure communities have the opportunity to be actively involved and collaborate on research, monitoring and planning initiatives (see Section 4.2.2)

Keys to Success	Timeframe	Key Players
Explore opportunities for community-based monitoring and consult with communities regarding monitoring indicators	Short term	GNWT/Canada
Conduct comprehensive and community-sensitive engagement mechanisms to indentify communities that can be better engaged in research and monitoring activities including needs assessment and priority setting	Medium term	ENR

Develop consistent approaches to research and monitoring that will increase our ecosystem understanding (see Section 4.2.3)

Keys to Success	Timeframe	Key Players
Determine existing aquatic monitoring practices and research activities	Short term	GNWT/Canada
Review and identify gaps and priorities related to aquatic research and monitoring	Medium term	GNWT/Canada
Determine consistent approaches to undertake research and monitoring to increase our understanding of the aquatic ecosystem	Long term	GNWT/Canada

Report research and monitoring results (see Section 4.2.4)

Keys to Success	Timeframe	Key Players
Share monitoring program findings with water partners and the public through effective data management and communication mechanisms (e.g., community-based meetings where the results are discussed)	Ongoing	Canada
Develop a procedure for communicating results and other related information to interested parties and the public	Ongoing	ENR/INAC

Advance transboundary discussions, agreements and obligations (see Section 4.2.5)

Keys to Success	Timeframe	Key Players
Identify commitments and obligations in various memoranda of understanding and other agreements	Short term	ENR/INAC

continued on next page...

Keys to Success	Timeframe	Key Players
Continue to prepare for negotiations of transboundary water agreements with Alberta and other Mackenzie River Basin jurisdictions	Short term	ENR/INAC
Collaborate to implement long-term aquatic ecosystem monitoring on transboundary waters and indicator areas, including community-based monitoring	Medium term	ENR/INAC

Use Responsibly

Develop and update guidance and policy documents for water partners to ensure consistent, transparent stewardship actions and decisions (see Section 4.3.1)

Keys to Success	Timeframe	Key Players
Develop procedures for determining effluent quality criteria in the NWT	Short term	INAC
Update mine site closure and reclamation guidelines	Short term	INAC/LWBs
Develop a discussion paper and have a workshop to define actions for the NWT relating to implementing the *Canada-wide Strategy for Municipal Wastewater Effluent*	Short term	GNWT/EC
Publish NWT Effluent Quality Criteria Guidelines for all uses	Medium term	LWBs
Update the Guidelines for Aquatic Effects Monitoring Programs in the NWT	Medium term	INAC/LWBs
Implement research and monitoring to inform development of Northern Performance Standards and other obligations under *Canada-wide Strategy for Municipal Wastewater Effluent*	Medium term	GNWT/EC/INAC

Routinely evaluate current legislation and regulations and amend as required to ensure they effectively achieve their intended purpose (see Section 4.3.2)

Keys to Success	Timeframe	Key Players
Continue to strengthen ongoing communication among the partners involved in water stewardship and those responsible for regulatory improvement initiatives to ensure regulatory changes are consistent with the vision of the Strategy	**Ongoing**	**ENR/INAC**
Clarify regulatory water-related security requirements	**Short term**	**INAC/ LWBs/ NWTWB**
Complete a review of the *Northwest Territories Waters Act* and identify desirable changes	**Medium term**	**INAC**

Ensure water managers have the capacity to fully promote compliance (see Section 4.3.3)

Keys to Success	Timeframe	Key Players
Identify community, Aboriginal, territorial and federal environmental compliance capacity issues and develop an implementation plan to address the identified concerns	**Medium term**	**ENR/INAC**

Check Our Progress

Conduct comprehensive evaluations of the Strategy's implementation progress (see Section 4.4.1)

Keys to Success	Timeframe	Key Players
Publish an annual overview of water-related research and monitoring programs results	**Ongoing**	**ENR/INAC**
Develop performance indicators to routinely measure progress	**Ongoing**	**ENR/INAC**

continued on next page...

Keys to Success	Timeframe	Key Players
Publish regular reports on progress towards achieving the Strategy's vision and goals	Ongoing	ENR/INAC
Use best efforts to implement recommendations from comprehensive evaluation processes	Ongoing	ENR/INAC
Link aquatic ecosystem indicators to overall evaluation of the Strategy's progress, state of ecosystem reporting and tools of the NWT Environmental Audit	Medium term	ENR
Conduct a comprehensive audit of the Strategy that is linked to the NWT Environmental Audit	Long term	ENR/INAC

Appendix G: Water Valuation and Sustainability Accounting

Water Valuation

Water is one component of the wealth and value of the natural environment to people. This endowment or wealth is reflected in the economic notion of natural capital. A comparable analogy was used by the residents of Kugluktuk during the Diavik Diamond Mine environmental assessment. Kugluktuk residents described the waters of Lac de Gras as the community's "water tank" and the Coppermine River as its "water line". Other communities often refer to the land as their "bank".

Water management decisions can be challenging. They often require decision-makers to address many diverse interests and understand the values and desires associated with them. Providing clarity regarding the values and respective weightings interested parties associate with water and water resources is essential to setting the stage for better informed stewardship activities, including management decisions.

Economic measures form only one reference point for making decisions. Many of the values held by NWT residents regarding water cannot be measured in economic terms. It is difficult to account for these values and to weigh the advantages and disadvantages of alternatives when they are not measured in the same, comparative manner. When these values are expressed in economic terms, there is often no consensus on the value attributed to a specific interest or use. In the end, decision-makers must be able to communicate the reasons for their decisions clearly and convincingly.

The issue of water valuation in the NWT is controversial and often emotional. Many people argue cultural values should not be, or cannot be, measured in purely economic terms and to do so diminish the cultural value in favour of economic interests. The reverse may also be true. Many cultural values may outweigh any possible economic value.

The reality that cultural values cannot be transformed easily, if at all, into economic values further complicates the situation.

In 2009, a study commissioned by the Canadian Boreal Initiative (The Real Wealth of the Mackenzie Region – Assessing the Natural Capital Values of a Northern Boreal Ecosystem) indicated the region's ecological goods and services are worth $570.6 billion per year if left undisturbed. This far outweighs its non-renewable resource potential. Clearly, much more work needs to be done in this area.

Collectively, we must come to a better consensus on various values we attribute to water, water resources, landscape features and water uses. A consensus on values means decision-making is better informed, more transparent, accountable and strongly supported.

Identifying information needs and improved valuation methodologies are required to develop a consensus. Associated management support systems need to be developed so that values and their respective weightings can be applied in an efficient and transparent manner in the decision-making processes. Decision makers must be able to fairly and objectively address the relative importance of these values and the consequences of water management alternatives for various interests.

The Real Wealth of the Mackenzie Region – Assessing the Natural Capital Values of a Northern Boreal Ecosystem

A study commissioned by the Canadian Boreal Initiative highlights the real wealth of the Mackenzie Region. It is the first watershed-based natural capital review done in Canada.

The study states the Mackenzie watershed, 1.7 million square kilometres or 170 million hectares, rivals the size and flow rates of many of the world's greatest river basins. These include the Nile, Yangtze and Amazon.

The Mackenzie watershed is rich in resources. It has vast deposits of conventional oil, oil sands, natural gas, timber and minerals. The economic value of the services provided by nature such as clean water, carbon storage and wildlife habitat does not appear on the balance sheet or contribute to Canada's gross domestic product (GDP).

The study provides a natural capital accounting for the Mackenzie watershed. It includes a total economic valuation of the market and non-market benefits of the watershed's natural capital.

Natural capital is the ecological goods and services provided by nature. Goods include water, timber and non-renewable resources such oil and natural gas. Services include water filtration, carbon storage, climate regulation, pest control, cultural benefits, recreational benefits and opportunities for a wide range of land uses.

The key findings of the study (updated 2009) are:

- The market value of the Mackenzie watershed, assessed as the region's GDP, is estimated at $41.9 billion per year, an average of $245 per hectare.
- The non-market value of the watershed, assessed as the potential value of 17 ecosystem services produced by the region, is estimated at $570.6 billion per year, an average of $3,426 per hectare.
- The ecological goods and services provided by nature (e.g., carbon storage, water filtration, water supply) in the Mackenzie contribute over 13.5 times more societal economic value than the GDP generated by natural capital extraction industries. This evaluation is not intended to undervalue the resource potential but rather to temper its value in a broader sustainability context.
- The industrial footprint in the region covers 25.6 million hectares and the estimated cost of natural capital degradation from development is likely to be in the billions of dollars. This does not suggest that natural capital extraction should cease, but rather that there be a more prudent approach to future natural capital stewardship, so that valuable ecosystem services can be maintained while meeting human needs and economic development objectives.
- The stored carbon and annual carbon absorbed by forests, peatlands, wetlands and tundra are valued at an estimated $339 billion in 2005, or 60 percent of the total estimated nonmarket value of ecosystem services.

The Canadian Boreal Initiative (CBI) commissioned this study to help decision makers – federal, territorial, provincial and First Nations governments – make informed stewardship decisions that balance broader ecosystem and cultural values with sustainable economic growth.

Natural Capital in the Context of Integrated Watershed Management

Natural capital is a way of expressing, in economic or monetary terms, the direct and indirect value of "services" provided by natural ecosystems and their components to people. For example, the value the Mackenzie River provides as a barge transportation route can be measured in economic terms. This cost can be compared to the cost of transportation without the river such as air transport. It is clear the natural capital value of the Mackenzie River just for transportation purposes is enormous.

The natural capital valuation for transportation is only one element of the total natural capital valuation of the Mackenzie River Basin. Fisheries, recreation, drinking water sources, wetlands for water purification, flood control, carbon storage and wildlife habitat are just some other elements of the total natural capital valuation of the Mackenzie River Basin. There are also the enormous and valuable cultural values associated with the basin.

Integrated watershed management ensures ecological goods and services supplied by a watershed are sustained so the overall natural capital asset of the watershed is maintained or increased over time.

Clear and consistent accounting of the natural capital of watersheds is needed to make sure the values are conserved and strengthened where appropriate. Trends over time in watershed natural capital provide important indicators as to the success of integrated watershed management.

Sustainability Accounting

Implementation of the Strategy can help ensure the long-term health and productivity of NWT waters. Clear and sound measures of sustainability are needed to make sure water stewardship activities are contributing positively and yielding benefits for NWT residents.

A comprehensive set of water resources sustainability accounts, based on the values given to water resources and water uses, are also needed. Sustainability accounts must include all elements NWT residents consider important about water resources. These accounts should also include value-based indices as well as economic and ecological indices.

Sustainability accounts should provide a sustainability index or index of well-being when weighted and measured. Accounts could include recreation uses, transportation uses, wildlife habitat, commercial fisheries, cultural sites and activities, domestic and industrial uses. It is possible to measure changes and understand the affects of the changes on NWT water resources if values are described as accounts.

Water partners, including both upstream and downstream users of shared water resources, are accountable for ensuring sustainability indices remain positive.

Understanding Sustainability Accounting

Sustainability accounting is based on the principles of accounting. Sustainability accounting, like financial accounting, consists of standards and procedures to determine the 'value' of an item and if the 'value' is increasing (more profitable) or decreasing (less profitable) over time. This information is provided in the balance sheet.

In the case of a company, the balance sheet is reviewed and used by the company and shareholders to make decisions. If the company is making a profit, shareholders might want to continue the same course of action or take steps to increase the profits. If the company is losing money, the shareholders may recommend ways the company can improve its practices and reduce losses.

Sustainability accounting follows a similar process. Sustainability accounting does not include a number of economic values. Instead, it includes many less conventional measures of well-being such as cultural values.

Sustainability accounting can capture the broad spectrum of water resources values determined by NWT residents and translate them into a comprehensive sustainability index of well-being.

Appendix H: NWT Environmental Stewardship Framework

The NWT Environmental Stewardship Framework (ESF) was established in 2002. It was created at the direction of the Ministers of Indian and Northern Affairs Canada, Environment Canada, Natural Resources Canada and the Government of the Northwest Territories' Department of Resources, Wildlife and Economic Development following the environmental assessment of the Diavik Diamond Mine. Both levels of government recognized the cumulative environmental effects of development in the NWT, particularly diamond mining, were becoming a significant concern. They also recognized the need for all parties to play a role in minimizing or eliminating the potential adverse effects of development. Representatives of Aboriginal, territorial and federal governments, the mining industry, the oil and gas industry and environmental organizations worked together to develop an environmental framework that allows for responsible economic development. The ESF consists of the Framework document, a Blueprint (implementation plan) and region-specific action plans.

The ESF is a "toolkit" of interlinked programs, policies and legislation intended to allow development to proceed with minimal environmental harm and maximum benefit to NWT residents. Each component supports and informs the others.

The Vision and Objectives component guides the overall Framework. The Planning and Environmental Programs component provides data, information and context for the Assessment and Regulatory component. The Assessment and Regulation component feeds back into the Planning and Environmental Programs component and confirms the Vision and Objectives component. Administration underlies and supports all components. The Audit and Reporting component provides the "check and balance" function.

Appendix I: Mackenzie River Basin Transboundary Waters Master Agreement Background

The *Mackenzie River Basin Transboundary Waters Master Agreement* was signed by the Governments of Saskatchewan, Alberta, British Columbia, Northwest Territories, Yukon, and Canada and came into effect in 1997. This agreement established the Mackenzie River Basin Board, which operates as a forum for discussion by the signatories.

The Master Agreement commits the signatory jurisdictions to the following principles:

- manage the water resources in a manner consistent with the maintenance of the ecological integrity of the aquatic ecosystem;
- manage the use of the water resources in a sustainable manner for present and future generations;
- allow each Party to the agreement to use or manage the use of water resources within its jurisdiction, provided such use does not unreasonably harm the ecological integrity in any other jurisdiction;
- provide for early and effective consultation, notification and sharing of information on developments and activities that might affect the ecological integrity of the aquatic ecosystem in another jurisdiction; and,
- resolve issues in a cooperative and harmonious manner.

Under the agreement, neighbouring jurisdictions can negotiate bilateral water management agreements to address water issues across jurisdictional boundaries on transboundary streams, rivers, lakes, deltas and wetlands, as well as groundwater, and to provide parameters on ecological integrity and the quality, quantity and flow of water. Jurisdictions can negotiate conditions that parties determine necessary to maintain healthy and diverse aquatic ecosystems.

The only bilateral agreement signed to date is between the NWT and Yukon. The NWT Water Stewardship Strategy provides a mandate for negotiations with upstream jurisdictions where activities can affect aquatic ecosystems and the quality and quantity of water entering the NWT. Negotiations between the NWT and Alberta are expected to begin in 2010.

Appendix J: Guidelines, Policies and Agreements

Some relevant guidelines, policies and agreements related to the NWT waters include the following:

Mackenzie River Basin Transboundary Waters Master Agreement

In 1997, all jurisdictions in the Mackenzie River Basin signed a Master Agreement committing these jurisdictions to work together more closely to manage the water resources of the Mackenzie River Basin.
www.ngps.nt.ca/Upload/Intervenors/Government%20of%20the%20Northwest%20Territories/j-gnwt-00027/documents/08_Mackenzie_Master_Agreement.pdf

Federal Policy on Wetland Conservation

This federal policy was created in 1999 to promote wetland conservation as a response to wetland decline in Canada.
dsp-psd.pwgsc.gc.ca/Collection/CW66-116-1991E.pdf

Road to Improvement: The Review of the Regulatory Systems Across the North

This report was released in 2008 by Neil McCrank, special representative to the Minister of Indian Affairs and Northern Development, as a result of the Northern Regulatory Improvement Initiative. It provides a comprehensive assessment of the regulatory system of NWT.
www.ainc-inac.gc.ca/ai/mr/nr/m-a2008/2-3070-eng.asp

Mine Site Reclamation Guidelines for the Northwest Territories

These guidelines were developed in 2006 and help ensure the water-related elements of mine site reclamation programs are consistent and well founded.
www.ainc-inac.gc.ca/ai/scr/nt/ntr/pubs/MSR-eng.asp

Guidelines for Designing and Implementing Aquatic Effects Monitoring Programs for Development Projects in the NWT

These guidelines were developed in 2009 and help ensure monitoring programs implemented by developers across the NWT are consistent and provide sound, comparable data.
www.reviewboard.ca/upload/project_document/1260402948_Overview_Report_of_AEMP_Guidelines.PDF

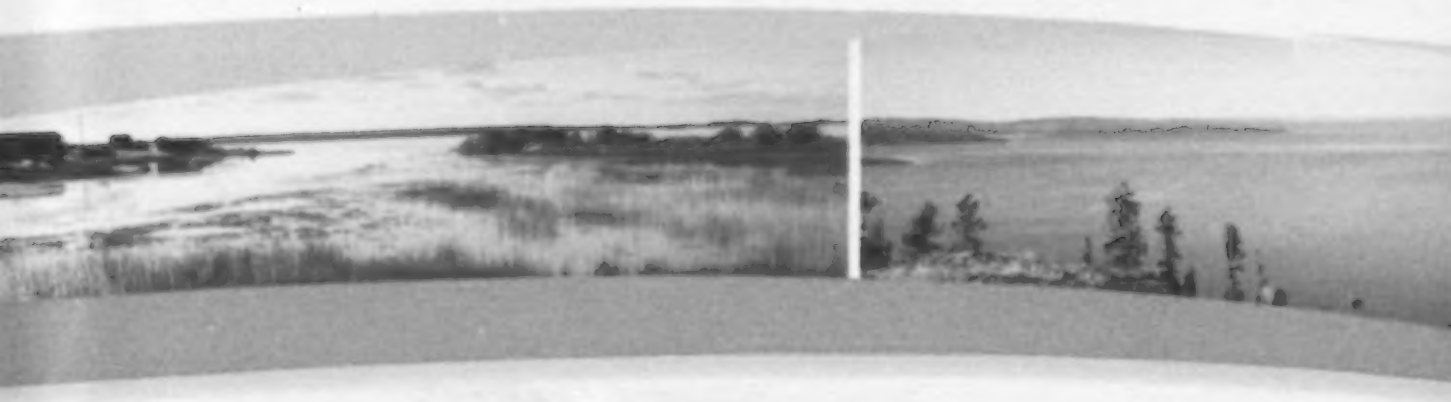
A Policy Respecting the Prohibition of Bulk Water Removal From Major River Basins in the Northwest Territories

To further strengthen the protection of water and in addition to Canada signing the *International Boundaries Waters Act*, this policy was developed in 2003 by Indian and Northern Affairs Canada and applies to all surface water and groundwater resources of the NWT. For a copy of the policy, please contact Indian and Northern Affairs Canada's Water Resources Division at 867-669-2655 or NorthwestTerritoriesWaters@inac.gc.ca

CCME Water Quality Guidelines

The Canadian Council of Ministers of the Environment's (CCME) Canadian Environmental Quality Guidelines include Canadian Water Quality Guidelines for the Protection of Aquatic Life. These guidelines are applied nationwide and set the standards for water and sediment quality in support of aquatic life, as well as tissue residue guidelines for the protection of wildlife consumers of aquatic biota. Some of these guidelines are already in place and others are under development.
www.ccme.ca/ourwork/water.html?category_id=41

More information on the NWT Water Stewardship Strategy can be found at: www.enr.gov.nt.ca



May 2010

Canada